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U.S. Department
of Transportation

**Federal Aviation
Administration**

Federal Aviation Regulations

Part 91
General Operating and Flight Rules

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PART 91

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Introductory Note

Part 91 is codified under Subchapter F, Air Traffic and General Operating Rules, of Title 14 of the CODE OF FEDERAL REGULATIONS.

This FAA publication of the basic Part 91, effective September 30, 1963, incorporates Amendments 91-1 through 91-121 and any changes required by the Department of Transportation transition amendment.

Introductory Note

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Part 91—General Operating and Flight Rules

Contents

Section *Page*

Preambles P-1

Subpart A—General

91.1 Applicability 1

91.2 Certificate of authorization for certain Category II operations 1

91.3 Responsibility and authority of the pilot in command 1

91.4 Pilot in command of aircraft requiring more than one required pilot 1

91.5 Preflight action 2

91.6 Category II and III operations: general operating rules 2

91.7 Flight crewmembers at stations 2-1

91.8 Prohibition against interference with crewmembers 2-1

91.9 Careless or reckless operation 2-1

91.10 Careless or reckless operation other than for the purpose of air navigation 2-1

91.11 Alcohol or drugs 3

91.12 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances 3

91.13 Dropping objects 3

91.14 [Use of safety belts and shoulder harnesses] 3

91.15 Parachutes and parachuting 4

91.17 Towing: gliders 4

91.18 Towing: other than under § 91.17 5

91.19 Portable electronic devices 5

91.20 Operations within the North Atlantic Minimum Navigation Performance Specifications Airspace 5

91.21 Flight instruction; simulated instrument flight and certain flight tests 5

91.22 Fuel requirements for flight under VFR 6

91.23 Fuel requirements for flight in IFR conditions 6

91.24 ATC transponder and altitude reporting equipment and use 6

91.25 VOR equipment check for IFR operations 7

91.27 Civil aircraft: certifications required 8

91.28 Special flight authorizations for foreign civil aircraft 8

91.29 Civil aircraft airworthiness 8-1

91.30 Inoperable instruments and equipment for multiengine aircraft 8-1

91.31 Civil aircraft operating limitations and marking requirements 8-1

91.32 Supplemental oxygen 9

91.33 Powered civil aircraft with standard category U.S. airworthiness certificates; instrument and equipment requirements 9

91.34 Category II manual 11

91.35 Flight recorders and cockpit voice recorders 11

91.36 Data correspondence between automatically reported pressure altitude data and the pilot's altitude reference 12

91.37 Transport category civil airplane weight limitations 12

91.38 Increased maximum certificated weights for certain airplanes operated in Alaska 13

91.39 Restricted category civil aircraft; operating limitations 13

91.40 Limited category civil aircraft; operating limitations 14

91.41 Provisionally certificated civil aircraft; operating limitations 14

READEX FICHE best copy available

Contents—Continued

Section *Page*
91.42 Aircraft having experimental certificates; operating limitations 14-1
91.43 Special rules for foreign civil aircraft 15
91.45 Authorization for ferry flights with one engine inoperative 16
91.47 Emergency exists for airplanes carrying passengers for hire 18
91.49 Aural speed warning device 19
91.50 [Reserved] 19
91.51 Altitude alerting system or device; turbojet powered civil airplanes 19
91.52 Emergency locator transmitters 20
91.53 [Reserved] 21
91.54 Truth in leasing clause requirement in leases and conditional sales contracts 21
91.55 Civil aircraft sonic boom 22
91.56 Agricultural and fire fighting airplanes; noise operating limitations 22
91.57 Aviation Safety Reporting Program; prohibition against use of reports for enforcement purposes 22-1
91.58 Materials for compartment interiors 22-1
91.59 Carriage of candidates in Federal elections 22-1

Subpart B—Flight Rules

GENERAL

91.61 Applicability 22-1
91.63 Waivers 22-1
91.65 Operating near other aircraft 22-1
91.67 Right-of-way rules; except water operations 22-1
91.69 Right-of-way rules; water operations 23
91.70 Aircraft speed 23
91.71 Acrobatic flight 23
91.73 Aircraft lights 24
91.75 Compliance with ATC clearances and instructions 24
91.77 ATC light signals 24
91.79 Minimum safe altitudes; general 24
91.81 Altimeter settings 25
91.83 Flight plan; information required 25
91.84 Flights between Mexico or Canada and the United States 26
91.85 Operating on or in the vicinity of an airport; general rules 26
91.87 Operation at airports with operating control towers 26
[91.88 Airport radar service areas] 28
91.89 Operation at airports without control towers 28
91.90 Terminal control areas 28
91.91 Temporary flight restrictions 29
91.93 Flight test areas 30
91.95 Restricted and prohibited areas 30
91.97 Positive control areas and route segments 30
91.99 [Reserved] 31
91.100 Emergency air traffic rules 31
91.101 Operations to Cuba 31
91.102 Flight limitation in the proximity of space flight operations 31
91.103 Operation of civil aircraft of Cuban registry 31
91.104 Flight restrictions in the proximity of the Presidential and other parties 32

VISUAL FLIGHT RULES

91.105 Basic VFR weather minimums 32
91.107 Special VFR weather minimums 32
91.109 VFR cruising altitude or flight level 33

INSTRUMENT FLIGHT RULES

91.115 ATC clearance and flight plan required 33
91.116 Takeoff and landing under IFR 33
91.117 [Reserved] 34-1

Contents—Continued

Section *Page*
91.119 Minimum altitudes for IFR operations 35
91.121 IFR cruising altitude or flight level 36
91.123 Course to be flown 36
91.125 IFR, radio communications 36
91.127 IFR operations; two-way radio communication failure 37
91.129 Operation under IFR in controlled airspace; malfunction reports 37

Subpart C—Maintenance, Preventive Maintenance, and Alterations

91.161 Applicability 38
91.163 General 38
91.165 Maintenance required 38
91.167 [Operation after maintenance, preventive maintenance, rebuilding, or alteration] 38
91.169 Inspections.] 38
91.170 [Changes to aircraft inspection programs] 41
91.171 [Altimeter system and altitude reporting equipment tests and inspections] 41
[91.172 ATC transponder tests and inspections 41
91.173 Maintenance records 42
91.174 Transfer of maintenance records 42
91.175 Rebuilt engine maintenance records 43
[91.177 [Reserved]] 43

Subpart D—Large and Turbine-Powered Multiengine Airplanes

91.181 Applicability 43
91.183 Flying equipment and operating information 44
91.185 Familiarity with operating limitations and emergency equipment 44–1
91.187 Equipment requirements: over-the-top, or night VFR operations 44–1
91.189 Survival equipment for overwater operations 44–1
91.191 Radio equipment for overwater operations 44–1
91.193 Emergency equipment 45
91.195 Flight altitude rules 45
91.197 Smoking and safety belt signs 45
91.199 Passenger briefing 46
91.200 Shoulder harness 46
91.201 Carry-on baggage 46
91.203 Carriage of cargo 46–1
91.205 Transport category airplane weight limitations 47
91.207 [Deleted] 47
91.209 Operating in icing conditions 47
91.211 Flight engineer requirements 47
91.213 Second in command requirements 47
91.215 Flight attendant requirements 48
[91.217 [Reserved]] 48
[91.219 [Reserved]] 49

Subpart E—Operating Noise Limits

91.301 Applicability; relation to Part 36 48
91.302 Part 125 operators; designation of applicable regulations 49
91.303 Final compliance: subsonic airplanes 49

Contents—Continued

Page

91.305 Phased compliance under Parts 121, 125, and 135: subsonic airplanes 49
91.306 Replacement airplanes 49
91.307 Service to small communities exemption: two-engine, subsonic airplanes 50
91.308 Compliance plans and status: U.S. operators of subsonic airplanes 50
91.309 Civil supersonic airplanes that do not comply with Part 36 50–2
91.311 Civil supersonic airplanes: noise limits 50–3

APPENDIX A. Category II operations: manual, instruments, equipment and maintenance 51
APPENDIX B. Authorizations to Exceed Mach 1 (§ 91.55) 55
APPENDIX C. Operations in the North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) Airspace 56–1

Special Federal Aviation Regulation 27—Compliance With Aircraft Emission Standards Issued by Environmental Protection Agency (*Preamble*) 57
Special Federal Aviation Regulation 27 (*Rule*) 79
Special Federal Aviation Regulation 21—Southern Rhodesia—Aviation Sanctions (*Preamble*) 87
Special Federal Aviation Regulation 21 (*Rule*) 89
Special Federal Aviation Regulation 29—FAA Study of Limited IFR Operations in Rotorcraft (*Preamble*) 91
Special Federal Aviation Regulation 29 (*Rule*) 97
Special Federal Aviation Regulation 41—Airworthiness Standards: Reciprocating and Turbopropeller-Powered Small Multiengine Airplanes—Increase in Approved Takeoff Weights and Passenger Seating Capacities (*Preamble*) 99
Special Federal Aviation Regulation 41 (*Rule*) 111
Special Federal Aviation Regulations 44–5—Air Traffic Control System Interim Operations Plan (*Preamble*) 117
Special Federal Aviation 44–5 (*Rule*) 133
Appendix to SFAR 44–5 135
Special Federal Aviation Regulation 44–6—Air Traffic Control System Interim Operations Plan (*Preamble*) 139
Special Federal Aviation 44–6 (*Rule*) 142
Special Federal Aviation Regulation 44–7—Air Traffic Control System Interim Operations Plan (*Preamble*) 149
[Special Federal Aviation Regulation 45—Model B Airspace (Airport Radar Service Area) (*Preamble*) 155
[Special Federal Aviation Regulation 45 (*Rule*)] 171

Adoption of Part 91

Adopted: June 24, 1963 **Effective: September 30, 1963**

(Published in 28 F.R. 6702, June 29, 1963, effective September 30, 1963.)

This amendment adds to Subchapter F—Air Traffic and General Operating Rules [New] of Chapter I of Title 14 of the Code of Federal Regulations Parts 91 [New], 93 [New], 95 [New], 97 [New], 99 [New], 101 [New], and 103 [New]. It also adds several definitions to, and deletes one definition from, Part 1 [New]. The amendment is a part of the program of the Federal Aviation Agency to recodify its regulatory material into a new series of regulations called the "Federal Aviation Regulations" to replace the present "Civil Air Regulations" and "Regulations of the Administrator".

During the life of the recodification project, Chapter I of Title 14 may contain more than one Part bearing the same number. To differentiate between the two, the recodified Parts, such as the ones in this subchapter, will be labeled "[New]". The label will of course be dropped at the completion of the project as all of the regulations will be new.

This action was published as a notice of proposed rule making in the Federal Register on February 1, 1963 (28 F.R. 1003), and as Draft Release 63-3.

Some of the comments received recommended specific substantive changes to the regulations. Although some of the recommendations might, upon further study, appear to be meritorious, they cannot be adopted as a part of the recodification program. The purpose of the program is simply to streamline and clarify present regulatory language and to delete obsolete or redundant provisions. To attempt substantive changes in the recodification of these regulations (other than minor, relaxatory ones that are completely noncontroversial) would delay the project and would be contrary to the ground rules specified for it in the Federal Register on November 15, 1961 (26 F.R. 10698) and Draft Release 61-25. However, all comments of this nature will be preserved and considered in any later substantive revision of the affected Parts.

As a result of other comments received, several changes have been made in Subchapter F.

Sections 91.33 and 91.35 have been added to include the instrument and equipment requirements for general aviation aircraft that were contained in Part 43. Section 91.33 incorporates the instrument and equipment requirements for standard category aircraft from former § 43.30 and the DME provisions from former § 43.33. Section 91.35 incorporates the flight recorder requirements from former § 43.32. These changes have been made in recognition of the greater user convenience that results from combining these rules with the general operation provisions of Part 91 [New].

A new § 91.37 has been included in Part 91 [New] to cover weight limitations for transport category aircraft. This section is based upon former §§ 43.11, and 43T.11 of SR 422A and SR 422B. These provisions were omitted from DR 63-3 as surplus, but comments correctly pointed out the need for their inclusion in Part 91 [New].

Section 91.59 as proposed in DR 63-3 required compliance with the applicable marine rules of the road when operating an aircraft on water but it did not specifically spell out those rules. In order to avoid any misunderstanding as to the rules that must be complied with, that section has been revised to state those rules in detail and it now appears as § 91.69.

A number of changes have been made in proposed § 91.75. As proposed in DR 63-3, that section contained the air traffic rules for operating on or in the vicinity of airports, including specific provisions for controlled and uncontrolled airports. Because of the undue length of the section it has been broken down into three separate sections which now appear as §§ 91.85, 91.87, and 91.89. Paragraph (a) of proposed § 91.75 defined, for the purpose of that section, the terms "airport traffic area," "controlled airport," and "uncontrolled airport". The latter two terms were distinguished on the basis of whether or not the airport had a control tower. One comment received pointed out that under the present rules even an airport without a control tower becomes a "controlled airport" if it is located in a control zone and the weather in that zone goes below basic VFR minimums. Therefore, §§ 91.87 and 91.89 have been revised to eliminate those terms and to execute their definitions. In addition, because of its general applicability, the definition of "airport traffic area" has been transferred to Part 1 [New].

Two other changes have been made in proposed § 91.75. First, the word "arriving" has been inserted in the first sentence of paragraph (c) of § 91.85 so that it correctly reflects the scope of the rule on which it is based. Secondly, paragraph (d) of § 91.87 has been revised to apply only to aircraft "operating to" an airport. As this provision appeared in the draft release it would apply to aircraft operating "to, from, or on" an airport. While this language properly reflected the applicability of former § 60.18(b), one comment pointed out its incorrect applicability and this opportunity is being taken to correct it.

One comment noted that proposed § 91.73 relaxed the requirement of § 60.20 by permitting a pilot to notify the nearest "ATC facility" upon cancelling or completing flight under a flight plan rather than the nearest "control tower". This relaxatory change in the rule was intended, and it has been retained in § 91.83(a). In addition, the requirement for indicating aircraft color in a flight plan has been deleted from that paragraph, since it was not contained in § 60.41.

Certain changes, not contained in Draft Release 63-3, reflect amendments to the Parts revised herein that became effective after the draft release was published. Each of these amendments, when published, contained a statement that they would be included in the final draft of the recodified Parts affected and, in addition, Draft Release 63-3 stated that such amendments would be included in the final draft of the revised subchapter. Amendments 43-16, 43-17, 48-1, 60-31, 60-32, and 619-1 are therefore reflected in the new subchapter.

Other minor changes of a technical clarifying nature or relaxatory nature have been made. They are not substantive and do not impose any burden on regulated persons.

Of the comments received on Draft Release 63-3, several suggested changes in style, format, or technical wording. These comments have been carefully considered and, where consistent with the style, format, and terminology of the recodification project, were adopted.

Comments received regarding proposed § 91.77 indicated a misunderstanding of the provisions of that section. Under § 60.24, on which proposed § 91.77 was based, there were two types of flight test areas, "approved" areas and "designated" areas. Since the Administrator has never "designated" flight test areas, § 60.24(a)(2) has been dropped as obsolete. The remaining flight test area provisions are now included in § 91.93.

A number of comments received regarding proposed § 91.35 indicated that many persons were not aware that under Part 190 of the Civil Air Regulations a person operating a foreign civil aircraft in the United States under VFR rules had to file a VFR flight plan. As proposed, § 91.35 simply restated that provision and it has been retained without change in § 91.43.

It should be noted that CAMs and information notes that are still current but which have been deleted as part of this amendment, will be republished in the Agency's Advisory Circular System.

The recodification of the air traffic and general operating rules in Subchapter F does not change the applicability of those rules, nor does it affect those rules governing special operations that prevail over the general rules contained in that subchapter. In addition, a certificate of waiver or an exemption that involves a regulation recodified herein that is outstanding on the effective date of this amendment will continue to be effective according to its terms and conditions even though it refers to Part or section numbers no longer in existence. For example, an exemption from the VFR cruising altitude provisions of former § 60.32 would continue under the terms and conditions of that exemption, to allow deviation from those altitudes, even though § 60.32 has been superseded by § 91.109. At such time as a certificate of waiver or an exemption is renewed, section references will be revised to reflect the new section number. In view of this, it is not necessary for persons who hold certificates of waiver or exemptions to take any action due to the recodification and renumbering of the air traffic and general operating rules.

The definitions, abbreviations, and rules of construction contained in Part 1 [New] of the Federal Aviation Regulations apply to Subchapter F. When Part 1 [New] was adopted its preamble stated that it would be amended as necessary in order to apply to specific regulations as they were recodified. As part of this action Part 1 [New] is being amended to incorporate definitions found to be necessary because of the adoption of subsequently issued FARs, including Subchapter F. The definitions of "air traffic clearance," "air traffic control," and "airport traffic area" have been incorporated from Part 60. The definitions of "kite" and "rocket" have been incorporated from Part 48. The definitions of "air commerce," "foreign air commerce," "interstate air commerce," and "overseas air commerce" have been incorporated from § 101 of the Federal Aviation Act of 1958. In addition to these definitions, Part 1 [New] is being amended to include definitions of "category," "class," and "type" and to delete the definition of "pilot".

Interested persons have been afforded an opportunity to participate in the making of this regulation, and due consideration has been given to all relevant matter presented. The Agency appreciates the cooperative spirit in which the public's comments were submitted.

In consideration of the foregoing Chapters I and III of Title 14 of the Code of Federal Regulations are amended as follows, effective September 30, 1963.

This amendment is made under the authority of sections 307, 313(a), 402, 601, 602, 603, 902, 1110, and 1202 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), 1372, 1421, 1442, 1443, 1472, 1510, and 1522).

Amendment 91-1

Miscellaneous Amendments

Adopted: December 26, 1963 **Effective: April 3, 1964**

(Published in 29 F.R. 45, January 3, 1964)

On November 1, 1962, notice was given in Draft Release 62-45 (27 F.R. 10656) that the Federal Aviation Agency had under consideration a proposal to amend Part 48 of the Civil Air Regulations to include regulations governing the operation of unmanned free balloons. The notice also proposed to amend the scope of Part 60 to exclude unmanned free balloons from the air traffic rules contained therein.

Regulatory action, as proposed, is required to provide the necessary compatibility between unmanned free balloon operations and other airspace activities. It is also necessary to provide for the protection of persons and property on the ground that are not associated with the operation of unmanned free balloons.

Eleven comments were received in response to the draft release. The National Aeronautics and Space Administration, the Air Line Pilots Association, the National Aviation Trades Association, the University of Minnesota, the Aircraft Owners and Pilots Association, and the National Center for Atmospheric Research endorsed the proposal as presented. The remainder of the comments generally supported the proposal but recommended certain changes. For continuity these recommendations will be considered in the sequence of the proposed rule.

The Department of the Army recommended that the term "size/weight ratio" be amplified to state more clearly how this ratio is computed. Therefore, that portion of the rule is modified; first, by reversing the term to read "weight/size" to more clearly show that it is the total weight of the payload package applied to the area of the smallest surface of such package; second, by adding a statement as to how the exact weight/size ratio can be determined.

One comment stated that the proposed regulation did not allow an operation to be conducted through a thin transparent cirrus cloud condition even though all other operating limitations were satisfied. Accordingly, it was recommended that there be provision for operations when such a cloud condition exists. The weather requirements adopted herein are necessary precautions to ensure that the balloon is operated in a manner that makes it easily seen and avoided by airplanes. Furthermore, since it is incumbent on the pilot of an airplane to see and avoid an unmanned free balloon by giving it right-of-way, a modification in the manner suggested would nullify a major safety objective to make balloon operations compatible with those of other airspace users. Therefore, no change is made in the operating limitations regarding cloud coverage and horizontal visibility.

One comment indicated a possible misconception regarding the lighting requirement during night operations. This requirement for lighting applies to the entire balloon assembly and not just to the balloon envelope. To eliminate any doubt, that portion of the rule is modified to clearly state that the requirement to light the balloon also applies to the entire balloon assembly, whether operated as one unit or separated during the operation.

The National Pilots Association recommended that all trailing antennas be marked with colored pennants or streamers since contact with the antenna by a small aircraft could produce an adverse effect if the antenna became entangled in the propeller. A light weight antenna that would be broken by a force of less than 50 pounds, which the proposal had exempted from such marking, is not suited for such attachments. A pennant or streamer attached to a light weight antenna has the tendency to float back up into the antenna and become entangled with it. This condition could nullify the purpose of the antenna, which is to supply altitude and D/F information to the balloon operator who, in turn, forwards the position and altitude to air traffic control. On this basis, no change is being made to that section of the rule.

Two other comments contended that marking an antenna so as to be visible for a minimum of one mile was inadequate. To increase this minimum, it would be necessary to require the use of a larger pennant or streamer. This could be a most difficult requirement for the balloon operator to meet and would generate the same previously mentioned nullifying effect on the use of the antenna. Therefore, no change is made to that section of the rule.

The Department of the Air Force and the Air Transport Association pointed out that the proposal did not require the suspension system to be marked in any way. In many cases it is not necessary to require by rule that the suspension system be marked because the plastic balloon bubble with its reflective surface is recognizable long before the suspension system would be seen. Additionally, a balloon suspension system of one or more open parachutes is already well marked and may be easily recognized since they normally employ high conspicuity colors such as aviation surface orange and white. We have, however, modified the rule to require that suspension systems, other than highly conspicuously colored open parachutes, exceeding 50 feet in length must be marked with colored pennants or streamers or alternate bands of high conspicuity colors. As discussed previously, in many cases it would be technically difficult to incorporate markings that would make a balloon subsystem easily recognizable much beyond one mile. Therefore, in addition to providing notice to airmen information about programmed balloon flights, the Agency will pursue an educational program by a continual reminder in the *Airman's Guide* and other aeronautical publications that flight below an unmanned free balloon should be avoided. In this reminder, all pilots will be advised that these balloons may have suspension devices and trailing antennas suspended beneath them that might be invisible until the aircraft is close to the balloon. This same type of notice has proven successful in the past by reminding all pilots operating in coastal waters about airships that might have invisible cables suspended beneath them.

The U.S. Air Force and the Air Transport Association recommended that unmanned free balloons, while within positive control areas, be equipped with a functioning radar beacon transponder that would permit radar observation of the balloon by Air Traffic Control. When Draft Release 62-45 was published, airborne radar beacon equipment was not considered readily adaptable to unmanned free balloons due to its weight and cost. In the meantime, a number of unmanned free balloons have been operated successfully utilizing beacon transponder equipment. These operations indicate that radar beacon equipment is adaptable for use on many unmanned free balloons. This equipment will undoubtedly be even more suitable when it is designed primarily for balloons with the view towards reduced weight, lower costs, and increased availability. In recognition of these matters, the Agency will issue a notice of proposed rule making to require a functioning radar beacon transponder on certain unmanned free balloons. Additionally, the use of such equipment may lend credence to a modification of certain of the weather requirements discussed earlier. During the development stages of the new notice, following the adoption of the rule contained herein, coordination with manufacturers of radar beacon equipment, balloon operators and other segments of the public will be conducted to obtain all possible opinions, recommendations, and reactions.

In view of the upward expansion of the positive control areas, all reference in the balloon position and notice requirements has been changed from 44,000 feet to 60,000 feet.

In consideration of the foregoing, Subchapter F of Chapter I of Title 14 of the Code of Federal Regulations is amended as follows.

This amendment is made under the authority of sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348 and 1354).

This amendment becomes effective on April 3, 1964.

Amendment 91-2

Miscellaneous Amendments

Adopted: February 28, 1964 **Effective: September 7, 1964**

(Published in 29 F.R. 2988, March 5, 1964)

This amendment amends Part 91 [New] of the Federal Aviation Regulations to make the IFR takeoff minimums of § 91.117(d) applicable to operations under Part 135, Air Taxi Operators and Commercial Operators of Small Aircraft [New], as published in the Federal Register (29 F.R. 2988, March 5, 1964), effective April 7, 1964, and September 7, 1964.

Amendment 91-3

Miscellaneous Amendments

Adopted: April 15, 1964 **Effective: July 6, 1964**

(Published in 29 F.R. 5449 on April 23, 1964)

This amendment amends Part 91 [New] of the Federal Aviation Regulations to make it applicable to the conditions of Part 43, Maintenance, Preventive Maintenance, Rebuilding, and Alteration [New], as published in the Federal Register (29 F.R. 5449).

Amendment 91-4

Installation of Cockpit Voice Recorders in Large Airplanes Used by an Air Carrier or a Commercial Operator

Adopted: June 26, 1964 **Effective: September 2, 1964**

(Published in 29 F.R. 8401 on July 3, 1964)

The purpose of these amendments is to require the installation of approved cockpit voice recorders in certain large airplanes used by air carriers or commercial operators. The requirements include rules for the operation of the recorders, standards of performance for their approval, and standards governing the method of installation on an airplane.

On December 18, 1963, the Federal Aviation Agency published a notice of proposed rule making circulated as Notice 63-46 (28 F.R. 13786), containing proposals to amend Parts 4b, 40, 41, and 42 of the Civil Air Regulations, Part 91 [New] of the Federal Aviation Regulations, and Part 514 of the Regulations of the Administrator, to accomplish this purpose. As stated in the notice, the Agency believes that cockpit voice recorders would be a valuable tool in the investigation of accidents by providing firsthand information of the flight crew's observation and analysis of conditions aboard the airplane and the procedures employed by them to cope with an emergency. This information would also facilitate the development and establishment of appropriate corrective procedures and standards by the Agency and industry.

A large number of comments were received in response to Notice 63-46. These comments have been carefully studied by the Agency and, where appropriate, changes have been made in this final rule. The following is a discussion of the major issues raised in response to the notice and the action, if any, taken by the Agency in the final rule.

1. *Crash and maintenance recorders.* The Air Transport Association urged government and industry to devote their current efforts and funds to crash and maintenance recorders and to exclude a separate voice recorder effort. This comment was based on the belief that the potential benefits of improved crash or maintenance recorders are far greater than those of the cockpit voice recorders proposed in the notice. The ATA pointed out that voice recordings could be misleading in the investigation of accidents, because the spoken words might describe one situation (e.g., approach lights are not visible) and immediately thereafter the situation might change (approach lights are seen) but with no words being spoken.

The Agency agrees that improved flight (crash) or maintenance recorders would be of great assistance in accident investigation; however, it does not believe that the development and eventual installation of such recorders will obviate the present or future need for cockpit voice recorders. Although the flight or maintenance recorder supplies information about the airplane itself, the cockpit voice recorder is needed to supply firsthand information concerning the flight crew's observation or analysis of the situation and the procedures employed by them. Fragmentary information from voice recorders may, in some instances, be misleading. Nevertheless the Agency believes that the information provided by the voice recorder will in most instances be helpful.

2. *Exemption of certain classes of airplanes.* The ATA also recommended that reciprocating twin-engine airplanes (e.g., DC-3, Convair 240, 340, 440. Martin 202, 404) be excluded from the cockpit voice recorder requirements because these airplanes have a proven safety record as shown by extensive service experience, and their remaining useful life is relatively short. The Agency finds merit in this recommendation, especially since flight recorders are not required on such aircraft and the effectiveness of the voice recorder on such aircraft may be reduced because of the high cockpit sound level. Further, the Agency considers that this reasoning applies also to nonpressurized reciprocating four-engine airplanes. The installation of cockpit voice recorders is therefore being required only for airplanes in the following classes:

(1) All large turbine powered airplanes;

(2) All large pressurized reciprocating four-engine airplanes.

3. *Restricted use of record.* Several comments recommended that the rules prohibit the use of cockpit voice recordings for any purpose other than accident investigation. One comment recommended a rule that recordings shall not be used in any civil penalty or certificate action, and shall not be disclosed publicly when such disclosure would adversely affect the interests of persons involved and is not in the interest of the public. Another comment recommended that only specified unbiased agencies (e.g., the Bureau of Standards, FBI, or Flight Safety Foundation) be authorized to perform readout of tapes.

The Agency agrees that its only purpose in requiring the recorded information is to assist in determining the cause of accidents or occurrences, and that the information should be used only in connection with the investigation of accidents or occurrences pursuant to Part 320 of the Board's Accident Investigation Regulations, (14 CFR Part 320) and not in any civil penalty or certificate action. A provision to this effect has been adopted. The Agency cannot, of course, bind the Courts or the Civil Aeronautics Board with respect to accident information and could not, even if it found it desirable, specify by rule those persons who would be authorized to read out voice recorder tapes.

4. *Bulk erasure.* Recommendations were made that a "bulk erasure" device be required in the recorder. The Agency believes that the provision of a bulk erasure feature should be a matter of individual determination by the air carriers involved and the rules being adopted neither require nor prohibit a bulk erasure feature. If bulk erasure devices are used the rules as adopted herein include a requirement that the installation minimize the probability of inadvertent operation or the actuation of the device during crash impact.

5. *Location of recorder.* The Civil Aeronautics Board recommended that the recorder unit which contains the record be located well back in the pressurized area of the fuselage (to minimize damage in a crash), since the proposed standards for the cockpit voice recorder specify an impact test of only 100g acceleration. Another comment made a similar recommendation.

The Board has supplied information concerning the damage which has occurred to flight recorders during accidents involving severe damage. This information indicates that in 13 out of 15 such accidents, the flight recorder was broken open and in 8 accidents fire also occurred. In all 15 of these accidents, flight recorders were mounted in the radio rack, wheel well, or center section. Thus service experience shows that flight recorders located in the radio rack, wheel well, or center section frequently break open during crashes, and expose the record medium to subsequent fire in about half of these crashes.

The Agency agrees with the recommendation of the Civil Aeronautics Board. Cockpit voice recorders designed to the current 100g impact standard can reasonably be expected to break open as frequently as the presently used flight recorders. The magnetic tape used in cockpit voice recorders should be kept below 250° F., in order to preserve the record, and is, therefore, much more vulnerable to heat damage than is the metal tape used in flight recorders. Therefore, voice recorder records would probably be lost in a number of accidents if the record containers have the same crash resistance and the same location in the airplane as the currently installed flight recorders.

There is no statistical evidence to make a direct comparison of the damage suffered by flight recorders in forward and aft locations. However, accident investigators have found that the aft portion of an airplane generally suffers less damage than the forward portion during crash impact.

In accordance with the recommendation of the Board § 4b.656(e) as adopted herein requires that the recorder container be located as far aft as practicable so as to minimize the probability of rupture of the container as a result of crash impact and consequent heat damage to the record because of fire. However, it need not be located outside of a pressurized compartment and must not be located where aft mounted engines are likely to crush the container during impact.

6. *Crash resistance criteria.* A recommendation was received that the proposed standard for impact shock and fire protection tests (section 3.13 of "Minimum Performance Standards for Cockpit Voice Records" dated November 1, 1963) be revised in adopt-

ing the final rules by increasing the impact acceleration from 100g for 11 milliseconds to 1000g for 0.5 milliseconds, by adding a crushing force test of 4000 pounds for 5 minutes, and by replacing the 1100° C. flame test with a two-step oven test at 1100° C. and 200° C., respectively. It was also recommended that the immersion test specified in section 3.12 be revised to include skydrol as well as sea water. The manufacturer making these recommendations further recommended that the deadline dates for completing recorder installations be delayed 6 months to enable the development of a recorder meeting the higher crash resistance standards.

The impact acceleration specified in the notice is the same as that currently specified in the standards for flight recorders, except that the 11 millisecond duration has been added. This impact test was specified in the Agency's development program for cockpit voice recorders, and recorders meeting this test are now ready for production.

The Agency plans to include an investigation of crash resistance in a program to develop improved aircraft data recorders. However, before new crash resistance standards could be considered for cockpit voice recorders, it would first be necessary to conduct an experimental test program to verify that the new standards are adequate and can reasonably be met. Although this recommendation may have merit, this procedure may delay the installation program more than 1 year. On the other hand, the installation of presently available recorders in an aft location which provides increased crash resistance could be accomplished in a shorter time. Accordingly, the rules being adopted at this time incorporate the impact, fire, and immersion test standards that were proposed in the notice.

7. *Compliance dates.* Notice 63–46 proposed the following deadline dates for completing cockpit voice recorder installations:

(1) July 1, 1965, for all turbine powered airplanes;
(2) January 1, 1966, for all pressurized reciprocating four-engine airplanes; and
(3) July 1, 1966, for all other airplanes.

In commenting on the notice, manufacturers recommended that these dates be postponed 6 months to allow time for determining suitable locations for microphones and for designing and testing the complete installation. Airlines recommended that the proposed dates be postponed 18 months (setting the deadline for turbine-powered airplanes at January 1, 1967), in order to avoid the severe economic and operational effects which would result from taking airplanes out of service to make the installations. One airline having 105 turbine-powered airplanes estimated that it would be necessary to remove 31 of these airplanes from service to meet the proposed July 1, 1965, deadline, assuming that the rules were adopted 15 months before the deadline. It was stated that the loss of revenue from removing these airplanes from service (at other than the scheduled maintenance periods) would be about twice the cost of installing the recorders.

Using the airline's estimate that approximately 70 percent of the installations could be completed in 15 months, it appears that the entire turbine-powered fleet could be completed in 22 months. Allowing 2 months additional engineering time for designing the aft installations, the total time from adoption of rules to completion of installations would be approximately 2 years. Accordingly, the following dates are prescribed in the amendments to Parts 40, 41, and 42 for completing cockpit voice recorder installations in certain large airplanes used by an air carrier or a commercial operator:

(1) July 1, 1966, for all turbine powered airplanes; and
(2) January 1, 1967, for all pressurized reciprocating four-engine airplanes.

8. *Source of electric power.* Several comments referred to the installation requirements proposed for Part 4b. One comment pointed out that the proposed requirement specifying that the cockpit voice recorder be connected to the bus of maximum reliability might jeopardize the operation of other equipment essential to the safe operation of the airplane. The Agency agrees and the adopted rule therefore specifies that the cockpit voice recorder shall receive its electric power from the bus which provides the maximum reliability for operation without jeopardizing service to essential or emergency loads.

9. *Channel priority.* Other comments pointed out the difficulties that might arise on some airplanes if more than one cockpit-mounted area microphone is connected to a single channel, or if loudspeaker systems are connected to the flight recorder. The Agency

believes these comments are valid. Accordingly, the channel assignments in § 4b.656(b) have been revised to eliminate these difficulties. In particular, the cockpit-mounted area microphone most suitably located for recording voice communications originating at the first and second pilot's stations has been assigned a separate channel.

10. *Intelligibility.* A recommendation was made that a definite minimum requirement of at least 95 percent intelligibility be prescribed for recordings made under any normal flight operating condition. Studies made by the Agency have shown that this goal is not attainable in the present state of the art and that the intelligibility which can be achieved depends upon the cockpit noise environment of the particular airplane type. For these reasons, the rule being adopted requires that the cockpit-mounted area microphones shall be located so that the intelligibility of the recorded communications will be as high as practicable.

11. *Ejection mechanism and locator aids.* One comment recommended that the recorder: (a) be ejectable from the airplane upon impact (to remove it from any crash fire); (b) be designed to float on water; (c) be fitted with an impact-triggered homing radio transmitter; (d) have additional channels; and (e) be painted a distinctive color as a locator aid. The Agency believes that the impact and fire test standards set forth in TSO-C84, coupled with the requirement for aft location of the recorder, will serve to preserve the voice record in the event of a ground crash fire without additional ejection features. The suggested ejecting, floating, and signal-transmitting features would apparently be helpful in preserving the voice record in the case of crashes at sea. The Agency is studying the need to require these features (which were not proposed in Notice 63-46) for both voice and flight recorders; if justifiable, further rule making along these lines will be undertaken. As to the matter of additional channels to record additional parameters, the Agency believes such a requirement would be premature in view of the program now under way for the development of improved aircraft data recorders.

The Agency agrees that the recorder container should have a bright distinctive color to assist in locating it after an accident. Such a minor additional requirement should not delay the installation program and it has been included in the installation requirements. Accordingly, the amendments to Part 4b require the recorder container to be painted bright orange.

12. *Time correlation with flight recorder.* One comment noted that it would be desirable to provide time correlation between the cockpit voice recording and the flight recorder record. Such a requirement is unnecessary because a crash impact, if it occurs, should provide an adequate means of correlation between the records.

13. *Sensitivity.* A recorder manufacturer recommended that consideration be given to the need for minimum sensitivity standards for the voice recorder amplifiers. Although no sensitivity requirement is contained in TSO-C84, the Agency believes that adequate sensitivity is prescribed, in effect, by the Part 4b installation requirement (adopted with this rule making action) dealing with the play-back intelligibility of the voice record. Accordingly, sensitivity standards are not being adopted at this time. For similar reasons, the Agency is not adopting a separate recommendation that distortion limits be specified at the extremes of the frequency range.

14. *Operation with inoperative voice recorder.* The ATA also commented on the proposed amendments to §§ 91.36(c)(1) and 91.36(c)(2) concerning continuation of flight with the cockpit voice recorder inoperative. The comments apparently assumed that these provisions of Part 91 [New] would apply to all air carrier and commercial operations. This assumption is not correct. Part 91 [New] applies, in this respect, only to general operations with air carrier airplanes, such as training and ferry flights. Air carrier and commercial operations, on the other hand, are governed under Parts 40, 41, and 42, wherein the matter of proceeding with inoperative equipment is treated in the "go-no-go" section of the air carrier's or commercial operator's manual. It is anticipated that the "go-no-go" sections of the air carrier's and commercial operator's manuals, dealing with cockpit voice recorders, will be similar to those dealing with flight recorders. Since the provisions being adopted for cockpit voice recorders in Part 91 [New] are identical with corresponding requirements therein for flight recorders, they have been incorporated in § 91.35.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, effective September 2, 1964, unless otherwise specified in this amendment, Parts 4b, 40, 41, and 42 of the Civil Air Regulations, Part 91 [New] of the Federal Aviation Regulations, and Part 514 of the Regulations of the Administrator are amended as follows.

These amendments are made under the authority of sections 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958, (49 U.S.C. 1354, 1421, 1423, 1424).

Amendment 91-5

Aircraft Speed

Adopted: July 13, 1964 **Effective: July 13, 1964**

(Published in 29 F.R. 9665 on July 17, 1964)

The purpose of this amendment is to restate the circumstances under which pilots may exceed the maximum speeds set forth in section 91.85(c) [New] of the Federal Aviation Regulations.

Section 91.85(c) [New] prescribes maximum speeds for arriving aircraft operated below 10,000 feet MSL within 30 nautical miles of an airport of intended landing, and for aircraft operated within an airport traffic area. However, it permits operation in excess of these maximum speeds, if the minimum airspeed required by the operating limitations of an aircraft or by military normal operating procedures is greater than the speeds prescribed by the regulation.

Apparently, little difficulty has arisen with respect to the intent of the language allowing military pilots to exceed the maximum speeds in section 91.85(c) [New]. However, a question has arisen over the intent of the exception that applies to nonmilitary operations. In particular, it has been pointed out that it is unclear whether a pilot exceeding the maximum prescribed speed to the extent necessary to maintain the airplane manufacturer's recommended turbulence penetration speed would be in violation of section 91.85(c) [New]. The difficulty here stems from the fact that these recommended penetration speeds are not categorized as "operating limitations" in airplane flight manuals prepared by the manufacturer.

The need for a provision in section 91.85(c) [New] permitting pilots to exceed the speed limit whenever it is essential to the safe operation of an aircraft is an obvious one, and the exception to the speed limit in the present rule was adopted in recognition of this need. It is apparent, however, that when applied to the problem of turbulence penetration, the wording of section 91.85(c) [New] is susceptible to an interpretation that is not only contrary to the intent of the rule, but a possible source of danger. Accordingly, the language of section 91.85(c) [New] is altered herein to indicate that a nonmilitary pilot may exceed the maximum speeds specified therein if the minimum speed required or recommended in the airplane flight manual to maintain safe maneuverability is greater than the maximum speeds prescribed in the rule.

Since this amendment is clarifying in nature and imposes no additional burden on any person, notice and public procedure thereon would not be necessary in the public interest. Therefore, it may be made effective immediately.

In consideration of the foregoing, the last sentence of Section 91.85(c) [New] of Chapter I of Title 14 of the Code of Federal Regulations is amended, effective upon publication in the Federal Register, to read as follows.

This amendment is made under the authority of Section 307 of the Federal Aviation Act of 1958 (49 U.S.C. 1348).

Amendment 91–6

Use of Parachutes During Acrobatics

Adopted: July 15, 1964 **Effective: August 21, 1964**

(Published in 29 F.R. 9823 on July 22, 1964)

The purpose of this amendment is to relieve the requirement for wearing parachutes during certain acrobatic flight. This action was published as a notice of proposed rule making and circulated as Federal Aviation Agency Notice No. 63–40 (28 F.R. 11075).

Section 91.71(b) of the Federal Aviation Regulations prohibits intentional acrobatic flight in an aircraft carrying a person other than a crewmember unless all occupants are equipped with approved parachutes. For the purposes of that section a student pilot has been interpreted as being a passenger, not a crewmember; therefore, a student pilot as well as his flight instructor is required to wear a parachute when the flight instructor is giving the student acrobatic instruction as defined by § 91.71(b)(1) and (2).

It was proposed in Notice No. 63–40 to permit flight instruction required by the regulations, without the wearing of parachutes, when that instruction is given by a certificated flight instructor. The permission would also, under the proposal, apply to flight tests for pilot certification or rating. A certificated flight instructor is properly presumed to have the skill necessary to safely give acrobatic instruction required by the pilot regulations within the operating limitations of the aircraft without the necessity of his or his student's wearing a parachute. Moreover, complaints from the field indicate that wearing parachutes in some aircraft may be a hazard to training since the bulk of the parachute may, due to the configuration and size of the pilot seat, reduce the pilot's visibility and hamper his handling of the controls.

Notice 63–40 referred to "training required by the regulations." Comments to the proposal indicated that there is doubt as to what maneuvers would be permitted without wearing parachutes. Therefore, the amendatory language has been rewritten to make it clear that, regardless of what certificate or rating the applicant is seeking, an acrobatic maneuver required for any pilot certificate or rating (even one not presently sought by the applicant) may be performed without parachutes when done by, or at the direction of, a certificated flight instructor. For example, a student pilot is not required to have flight instruction in spins; however, his flight instructor, if he considers this training necessary, may give the student this training without parachutes since spin instruction is required for certain other certificates or ratings.

Although the notice referred only to certificated flight instructors, the exception to the applicability of § 91.71(b) has been rewritten to make it clear that an airline transport pilot may give certain instruction in air transportation service without the use of a parachute since an airline transport pilot instructing under § 61.163 is, for the purposes of § 91.71, a certificated flight instructor.

Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all relevant matter presented. The Agency appreciates the cooperative spirit in which the public's comments were submitted.

In consideration of the foregoing, Part 91 [New] of Chapter I of Title 14 of the Code of Federal Regulations is amended, effective August 21, 1964, by adding a new paragraph (c) to § 91.71 to read as follows.

This amendment is made under the authority of sections 313(a), 601, and 602 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, 1422).

Amendment 91–7

Lowering of Base Altitude for Standard Altimeter Setting

Adopted: July 16, 1964 **Effective: September 17, 1964**

(Published in 29 F.R. 9893 on July 23, 1964)

A Notice of Proposed Rule Making (29 F.R. 4105) and a Supplemental Notice of Correction (29 F.R. 4778) were published in the Federal Register on March 28, 1964 and April 3, 1964, respectively, stating that the Federal Aviation Agency proposed to lower the base altitude for use of a standard altimeter setting (29.92" Hg.) to 18,000 feet MSL.

Interested persons were afforded an opportunity to participate in the rule making through submission of comments. Due consideration was given to all relevant matter presented.

The Air Transport Association recommended that § 91.81(a)(1) be worded, "At and below 17,500 feet MSL, to —" instead of "Below 18,000 feet MSL, to —". Such wording would create a void between 17,500 feet MSL and 18,000 feet MSL, wherein no uniform altimeter setting would be prescribed. Although a similar zone exists under current regulations between 23,500 feet MSL and 24,000 feet MSL, safety considerations associated with certain terrain elevations and with transitioning from a sea-level barometric pressure setting to the standard setting at the lower level militate against establishing such a zone at this altitude. Accordingly, the recommendation was not adopted.

The Air Line Dispatchers Association (ALDA) commented that the flight level adjustment tables in the Notice set forth 26.92 as the lowest probable reading and that a reading of 26.35 had been recorded. The tables could be extended to reflect lower readings, but this was not considered necessary, since the recorded reading of 26.35 was an observation taken at Key West, Florida, in the eye of a severe hurricane. The tables as presently constructed provide for all flight conditions which may reasonably be expected to exist.

The ALDA also recommended an initial reduction of the base altitude to FL 210 or FL 200, with a later step-down to 18,000 feet MSL, so that pressure variations would not adversely affect separation of aircraft or terrain clearance. As terrain would still be a factor at FL 200 or FL 210 in some locations, and since the tables are designed to provide for adequate vertical separation, the suggestion was not adopted.

The National Business Aircraft Association, Inc. (NBAA) commented that it favors use of the standard altimeter setting in the high altitude airspace structure, but considers the provisions of the Notice as unnecessary in light of its recommendation that the base of the high altitude structure remain at 24,000 feet. Accordingly, as the reasons for selection of a base altitude of 18,000 feet were based on considerations for the most efficient use of the airspace, it is presumed that NBAA would endorse the use of the standard altimeter setting at and above 18,000 feet MSL.

Additional comments submitted by the Air Line Pilots Association, U.S. Navy Attack Squadron 43, and the National Pilots Association endorsed the proposed amendment.

In consideration of the foregoing, and for the reasons stated in the Notice, Part 91 [New] of the Federal Aviation Regulations is amended, effective 0001 EST, September 17, 1964, as hereinafter set forth.

These amendments are made under section 307 of the Federal Aviation Act of 1958 (72 Stat. 749; 49 U.S.C. 1348).

Amendment 91-8

Prohibition of Responding to Radar Clearances and Instructions Intended for Another Person

Adopted: October 13, 1964 **Effective: October 14, 1964**

(Published in 29 F.R. 14404, October 20, 1964)

The Agency recently detected a hazardous condition caused by pilots who improperly flew radar clearances and instructions issued by Air Traffic Control to other pilots. In one recent incident an arriving aircraft was being radar vectored to the ILS final approach course while another aircraft was observed following the same radar instructions. On another occasion, an aircraft was observed following the radar instructions issued to the principal aircraft. In both of these cases it was determined that the pilots who were improperly following the vectors assigned to the other aircraft were complying with the controller's clearances and instructions for purposes of training without realizing this action could result in misidentification and have serious safety repercussions.

Positive identification of aircraft is a basic requirement for the use of radar in the air traffic control system. One method of establishing identification is based upon a turn of 30 degrees or more, provided that only one aircraft is observed to make a turn and the controller has reasonable assurance that the aircraft is within the area being displayed on the radar. When multitracks of targets are observed responding to identification and vectoring procedures being used, identification becomes difficult, or, if previously established, may be lost. Also, if an observed target responds to instructions intended for an aircraft not yet appearing on the radar display, safety of the pilot for whom the instruction was intended could be compromised. While pilots may intend no harm, continuation of these practices will derogate the radar controllers' capability of correctly identifying radar targets.

On the basis of the above, I have determined that a safety hazard exists requiring immediate regulatory action. In addition, I find it contrary to the public interest to comply with the notice, public procedure and effective date requirements of the Administrative Procedure Act, and therefore this regulation may become effective in less than 30 days.

In consideration of the foregoing, § 91.65 of Part 91 [New] of the Federal Aviation Regulations (14 CFR Part 91) is amended, effective 0001 e.s.t. on October 14, 1964, by adding the following new paragraph at the end thereof.

This amendment is issued under the authority of Sections 307(a) and 1110 of the Federal Aviation Act of 1958 (49 U.S.C. 1348(a) and 1510).

Amendment 91-9

Miscellaneous Amendments

Adopted: October 14, 1964 **Effective: February 1, 1965**

(Published in 29 F.R. 14562, October 24, 1964)

This amendment was made in conjunction with the issuance of Part 21 [New]. A complete explanation of this amendment is contained in the preamble to that Part.

Amendment 91-10

Miscellaneous Amendments

Adopted: November 3, 1964 **Effective: February 1, 1965**

(Published in 29 F.R. 18289, December 24, 1964)

This amendment amends Part 91 [New] of the Federal Aviation Regulations by deleting the definitions of "clearway" and "stopway" in § 91.37(d) (which have been incorporated in Part 1 [New] and by replacing the references to SRs 422A and 422B in § 91.37 with references to their respective periods of effectiveness. The reasons for this amendment are set forth in the preamble to Part 25 [New], as published in the Federal Register (29 F.R. 18289)

Amendment 91-11

Miscellaneous Amendments

Adopted: December 23, 1964 **Effective: April 1, 1965**

(Published in 29 F.R. 19096, December 30, 1964)

The purpose of these amendments is to complete the remainder of the Agency's recodification program. The program was first announced in Draft Release 61-25, published in the Federal Register on November 15, 1961 (26 F.R. 10698).

All Civil Air Regulations in Chapter I of Title 14 of the Code of Federal Regulations will have been replaced with the issue of Part 121 of the Federal Aviation Regulations. That Part is being issued separately and will become effective at the same time as these amendments.

The recodification of the regulations in Chapter III (Regulations of the Administrator) of Title 14 and the Special Civil Air Regulations is completed with the issue of the following miscellaneous amendments to Chapter I of Title 14. No regulations of the FAA will remain in Chapter III. Henceforth, all Federal Aviation Regulations and Special Federal Aviation Regulations will be contained in Chapter I of Title 14 of the Code of Federal Regulations.

In an attempt to limit the use of "special" regulations to those occasions of temporary or peculiar regulatory need, this amendment deletes certain Special Civil Air Regulations (SRs) of indefinite duration and incorporates them into the Federal Aviation Regulations:

1. SR 330 is being recodified by including its substance in a new § 141.31, Special flight instruction for military personnel of a foreign government.
2. SR 389B is being recodified by including its substance in a new § 91.47, Emergency exits for airplanes carrying passengers for hire.
3. SR 411B, as applicable to foreign air carriers, is being recodified by including its substance in a new § 129.23, Transport category cargo service airplanes: increased zero fuel and landing weights.
4. SR 448A, except for paragraph (2). is being recodified by including its substance in a new § 91.8, Prohibition against interference with crewmembers.
5. SR 456 is being recodified by including its substance in a new § 91.103, Operation of civil aircraft of Cuban registry.

Part 121 of the Federal Aviation Regulations will contain the substance of SR 411B as it applies to air carriers other than foreign air carriers.

Because the applicability of neither SR 389B nor SR 448A(1) was restricted to operation within the United States but in effect, extended throughout air commerce, § 91.1 is being amended to except new §§ 91.47 and 91.8 from applicability only within the United States. Also included within this exception are two other sections already in Part 91. These sections, §§ 91.19 and 91.45 as originally recodified, were limited in applicability by § 91.1, to within the United States. The applicability provisions of those Civil Air Regulations from which these sections were recodified were not so limited. The effect of the new exception in § 91.1(c), is to relieve the four specified sections from the geographic limitation of § 91.1(a). It should also be noted that this exception is limited to aircraft of U.S. registry. Clarifying provisions are being added to new § 91.1(c) to assure that, for the purposes of the excepted sections, there can be no regulatory conflict for U.S. registered aircraft operating in foreign countries or over the high seas. In addition, the word order in § 91.1(a) is being revised to show more clearly that the exception refers only to the limitation of the Part's applicability to operations within the United States.

Paragraph (2) of SR 448A dealt with the prohibition against carrying a dangerous weapon while on board air carrier aircraft. Since its applicability extended only to air carrier aircraft, SR 448A(2) is being recodified by adding § 121.585 (to be issued separately) and a new § 135.64. Section 127.227(c) already reflects SR 448A(2). Since SR 448A(1), which was the basis for paragraphs (a) and (b) of § 127.227, is hereby being recodified as § 91.8, § 127.227 is being amended to delete those paragraphs. In addition, § 127.139 is being clarified by adding to it a definition, taken from CAM 40.241-1, of "directly in charge". This definition reflects the sense in which the term is used in this section and in § 127.378, where it will also be added.

The following Special Civil Air Regulations are being deleted, because each has accomplished its intended purpose and is no longer necessary: 395B; 430; 431; and 433. Because the geographic applicability of § 91.19 is being extended by amendment of § 91.1, SR 446B may now be deleted. SR 450A has not been recodified since it will lapse of its own force on February 1, 1965. In addition, SR 397, which in effect was an exemption from the Civil Air Regulations, rather than a regulation, is being deleted. In its place the Agency is issuing separately, a grant of exemption from the Federal Aviation Regulations for aircraft and airmen engaged in operations conducted for the United States Forest Service.

Certain Special Civil Air Regulations are being redesignated as Special Federal Aviation Regulations (SFARs). These are former SRs 399D, 407, 426, and 454A.

Of these, the first deals with the maximum certificated weight for airplanes operated in Alaska by Alaskan air carriers, air taxi operators, and the Department of the Interior. This regulation becomes SFAR 12 and its expiration date remains October 25, 1965.

SR 407 provides for approval of modified Douglas DC-3 and Lockheed L-18 type airplanes, and SR 426 provides for performance credit for transport category airplanes equipped with standby power. The present expiration date of each is indefinite. They are being redesigned as SFARs 13 and 14, respectively. One reason for not recodifying them into the basic FARs is that the need for each regulation has diminished over the years and is now quite limited.

In addition, neither SR belonged in any one Part of the Federal Aviation Regulations. In light of these peculiarities and since a special regulation does not differ in legal effect from any other regulation, the Agency determined to redesignate SR 407 as SFAR 13 and SR 426 as SFAR 14.

SR 454A provides for operation over certain areas of Florida and adjacent waters. In view of the significant tie of this regulation with National Defense interests and the international political atmosphere, either of which could change on very short notice, the Agency finds that National Defense and safety in air commerce are best served by redesignating SR 454A as SFAR 15.

In addition, it is no longer necessary to use the word "[New]" when referring to a Part of the Federal Aviation Regulations. This is possible because all Civil Air Regulations in Chapter I of Title 14, with the issue of Part 121, have now been replaced by Federal Aviation Regulations.

None of these amendments impose an additional burden on any person. Some are clarifying in nature, while most simply restate the substance of the specified regulations. Because of this I find that notice and public procedure hereon are unnecessary.

In consideration of the foregoing, Title 14 is amended by striking out the Regulations of the Administrator in Chapter III and by amending Chapter I as follows, effective April 1, 1965.

1. By striking out Special Civil Air Regulations 330, 389B, 395B, 397, 411B, 430, 431, 433, 446B, 448A, 450A, and 456.

2. By amending Part 91—General Operating and Flight Rules as follows.

Amendment 91–12

Operating Limitations for Restricted Category Aircraft

Adopted: February 18, 1965 **Effective: March 27, 1965**

(Published in 30 F.R. 2531, February 26, 1965)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to specify clearly the operations authorized in restricted category aircraft, and what persons may be carried on those aircraft.

Part 21 of the Federal Aviation Regulations sets forth requirements (that were formerly set forth in Part 8 of the Civil Air Regulations) for the issuance of restricted category type and airworthiness certificates for aircraft that are intended to be operated for agricultural, industrial, or other "special" purposes. Because of the special nature of the intended usage of these aircraft, the airworthiness certification standards for them are not designed to provide the same level of safety that is required for aircraft certificated in the standard category. The operating limitations for restricted category aircraft are set forth in § 91.39 of the Federal Aviation Regulations, and are designed to compensate for this, and to provide the necessary level of safety for special purpose operations.

Because of some question as to whether these limitations (and certain provisions of the former Part 8) prohibit a restricted category aircraft from being operated for other than the special purpose for which it was certificated, the Agency proposed in Notice 64–2 (29 F.R. 477, January 18, 1964) to delete § 8.0–1(a) of the Civil Air Regulations and to amend § 91.39 to make it clear that this prohibition is intended. It was also proposed to amend § 91.39 to clarify the Agency's intent with regard to the persons that may be carried in restricted category aircraft. The recodification of Part 8 was completed with the adoption of Part 21 of the Federal Aviation Regulations (Certification Procedures for Products and Parts). Section 8.0–1(a) was deleted in the recodification, and, accordingly, this amendment affects only Part 91.

Some of the comments received on Notice 64–2 simply stated, without more, that the proposal is unnecessary for safety and would impose an unnecessary burden on the operation of restricted category aircraft. Others, more specific, incorrectly assumed that the proposal would limit the use of restricted category aircraft to one special purpose operation. As was the case under Part 8, under Part 21 an aircraft can be certificated in the restricted category for one special purpose or for combinations of special purposes, that usually require modifications in basic aircraft design or increases in maximum weight, or both. Section 91.39(a), as proposed and as adopted, does not place any limitation upon the number of special purposes for which an airplane may be used, but is intended to clearly limit the operation of a restricted category aircraft for the special purpose (or purposes) for which it is certificated, including all operations necessary for the accomplishment of the work activity directly associated with that special purpose (or purposes).

Another comment expressed concern that § 91.39(c), as proposed, would lessen the number of persons whose carriage would be considered essential to the conduct of the special purpose. Again, this amendment is intended to clarify the Agency's intent in this regard, and not to impose additional restrictions. Possibly, the term "ground personnel" in the proposal is the source of this confusion and lends itself to an interpretation that it refers only to personnel directly connected with the operation or maintenance of the aircraft. The intent of the amendment is somewhat broader than this. To better reflect the Agency's intent in this regard, the rule adopted herein permits the carriage of (in addition to a flight crewmember or flight crewmember trainee) a person who "performs an essential function in connection with a special purpose operation for which the aircraft is certificated", or one who is "necessary for the accomplishment of the work activity directly associated with that special purpose." Thus, the rule envisages that persons connected with the special purpose operation could be carried either during the actual special purpose operation, or during other operations "necessary for the accomplishment of the work activity directly associated with the special purpose for which the aircraft is certificated." For example, a farmer contracting for crop dusting may have to go up in the aircraft either during or before the actual operation to show which field should be dusted; or a surveyor, inspector, insurance agent, etc., might have to be carried to the scene of operations. During some intricate sling installations by helicopter, a technician, aboard to give advice or check on the installation, could be considered "necessary" under the rule.

Another comment asserted that the proposed deletion of the phrase "in a special purpose operation" from § 91.39(c) (redesignated herein as § 91.39(d)) would bar restricted category aircraft from operating from bases near a busy airport. The Agency disagrees. That section presently prohibits operation of a restricted category aircraft in certain areas including those "Near a busy airport where passenger transport operations are conducted." The deletion of the phrase in question is intended to remove any inference that a restricted category aircraft may be operated in other than the special purpose operation (or operations) for which it is certificated, or that it may be operated in the areas prohibited by present § 91.39(c). The phrase is redundant and its deletion will not prohibit any operation that is presently permitted under the rule.

Another comment from the holder of a restricted category type certificate for a large surplus military airplane proposed adding as an approved special purpose the "carriage of property owned by the owner or lessee of the aircraft or used in support of his business." Such an addition, it was contended, would be consistent with the existing prohibition against the carriage of cargo for compensation or hire. The effect of this proposal would be to permit the certification of an airplane in the restricted category for the primary purpose of carrying ordinary cargo used in the course of the operator's business. This would not be a "special" purpose within the meaning of § 21.25 nor would the proposal be consistent with the way Part 8 was interpreted and administered until its recodification. This position was reiterated by the Agency in justifying the need for Part 9a of the Civil Air Regulations (recodified as § 21.27 of the Federal Aviation Regulations). In the preamble to the notice of proposed rule making thereon (Notice 63-13; 28 F.R. 3555), the Agency pointed out that: "Certification in accordance with current Part 8, however, permits only special purpose operations. In some cases, especially those involving large aircraft, the type of operation contemplated, e.g., unrestricted carriage of cargo, does not qualify as a special purpose." Part 9a was adopted on December 5, 1963, and, as recodified in Part 21, provides for the certification of surplus military airplanes under that Part, and also provides for the operation of the airplanes in question for the unrestricted carriage of cargo.

Other comments received were not directed to the substance of the proposals set forth in Notice 64-2 or raised matters that went beyond their scope.

It should be noted that this amendment applies to all operators of restricted category aircraft, regardless of when their aircraft was certificated.

In consideration of the foregoing, § 91.39 of Part 91 of the Federal Aviation Regulations is amended, effective March 27, 1965, as follows.

These amendments are issued under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, and 1423).

Amendment 91-13

Miscellaneous Amendment

Adopted: March 3, 1965 **Effective: June 7, 1965**

(Published in 30 F.R. 3200, March 9, 1965)

This amendment was made in conjunction with the issuance of Amendment 25-1 to Part 25 and Amendment 121-2 to Part 121. The purpose of these amendments is to provide for improved emergency evacuation procedures and equipment for passenger-carrying aircraft. A complete explanation is contained in the preamble to the amendments which is reproduced in Part 25 and Part 121.

Amendment 91–14

Radio Failure Procedures in IFR Operations

Adopted: March 15, 1965 **Effective: May 27, 1965**

(Published in 30 F.R. 3705, March 20, 1965)

On June 18, 1964, a notice of proposed rule making was published in the Federal Register (29 F.R. 7605) stating that the Federal Aviation Agency proposed to revise the radio failure procedures in Instrument Flight Rules Operations.

Interested persons were afforded an opportunity to participate in the rule making through submission of comments. Due consideration was given to all relevant matter presented.

The Air Transport Association of America (ATA) commented that the proposed rule failed to provide adequately for the pilot who, after departure, is assigned an altitude below the highest route structure and then experiences radio failure. In this situation the crew, which might be operating a turbojet aircraft, would be required, under the proposed rule, to proceed at the last assigned altitude, or minimum altitude for IFR operation, whichever is the highest. Increased fuel consumption at the lower flight levels might create an impossibiliy for some flight crews to comply with the radio failure rule and reach the planned destination. The Department of the Air Force commented similarly.

Both the ATA and the Air Force recommended procedural rather than regulatory changes to correct the problem. The Air Force recommended a procedural revision to insure that pilots programming flights be assigned a flight level, or an expected clearance altitude, if at FL 290 or above, of not less than 4,000 feet below the flight plan altitude; or, if below FL 290, a flight level of not less than 2,000 feet below the flight plan altitude.

During the study made by the FAA of procedures for the modified airway route system, careful consideration was given the procedures involving the assignment of initial altitudes to jet aircraft. It was determined that the present ATC procedures adequately provide for potential radio failures in turbojet aircraft. In certain situations the initial clearance issued under present procedures may not provide for an altitude high enough to permit reaching the desired destination. The most desirable method would be to provide for altitudes which would always permit continuation of flight. However, if mandatory procedures to provide this method, as recommended by the Air Force, are established, they may prevent the controller from issuing a clearance with which the pilot could safely comply. Occasionally, extensive coordination would be required in order for the controller to issue a clearance at, or relatively close to, the filed altitude or flight level. Rather than delay issuing the clearance while this coordination is accomplished the controller issues a clearance which does not require immediate coordination, and then accomplishes the coordination without delay to the aircraft. The establishment of a mandatory provision would prohibit this procedure and create unnecessary delay since there would be times when an initial clearance, lower than any mandatory provision, might be acceptable even though the pilot had programmed for a much higher altitude or flight level. The pilot receiving the clearance is in the best position to determine whether the conditions are of a nature that he can accept the clearance, and, if not, to advise the controller that the clearance is not acceptable. The radio failure procedures are being studied and evaluated continuously. Certain changes pertinent to altitude accommodations can be accomplished more expeditiously through procedural methods than by regulatory measures.

ATA commented on the relation of the minimum useable flight level in § 91.81 to radio failure procedures. The specific question was raised, "If the altimeter setting should be something lower than 29.41" Hg., then the aircraft climbing on a sea level adjusted altimeter would reach 18,000 feet MSL and, according to the rules, change a standard altimeter of 29.92" Hg. and then cruise with his altimeter reading 19,000 feet." Question: "Does he remain at FL 190 which, under the existing circumstances, is the lowest useable flight level or descend to FL 180?" The ATA recommended providing for the lowest useable flight level.

Although the lowest useable flight level was not directly referred to in the proposal, it was not considered necessary. A pilot operating in a selected flight level determines the appropriate minimum flight level in accordance with § 91.81(c), thereby insuring operation at, or above, the lowest useable flight level as determined in § 91.81(b). Since it appears that the specific wording in the proposal may not convey fully the applicability of the minimum flight level to the minimum altitude, action is taken herein to amend the wording in order to clarify the intent.

The National Business Aircraft Association, Inc. (NBAA) expressed the view that, as a procedure for arrival and departure terminal controllers, a series of radar vectors must be preceded by advice to the pilot that the vectors will terminate at a specified navigational fix and altitude within the terminal area. Similarly, a pilot in the en route phase of flight must be advised of the navigational fix and altitude toward which a series of vectors is directed. Based on this reasoning, the NBAA suggested an addition to FAR Part 91 of paragraph 91.127(c)(1)(iv) which would read as follows: "In the absence of an assigned route due to radar vectoring away from such route, the direct route from the point of radio failure to the next navigational fix and altitude stated in the last ATC clearance obtained by the pilot shall become the assigned route."

ALPA commented that the proposed rule appeared inadequate in the area of radar vectors associated with Standard Instrument Departures. ALPA suggested that a provision should be added in the rule to the effect that when a pilot, who has neither an assigned route nor an "expect-further-clearance" loses communications while on a radar vector, he will proceed directly to the next radio facility defining the filed route.

Essentially, these procedures suggested by NBAA and ALPA are in effect at the present time. Current procedures require controllers to advise the pilot of the airway, route, or fix to which the aircraft is being vectored. It is considered that this advisory constitutes the "route assigned" in § 91.127(c)(1)(i). However, since the addition of more specific wording in the regulation may serve to increase clarity, the recommendation for that portion pertaining to the route is adopted and action is taken herein to insert this provision as § 91.127(c)(1)(ii). Proposed subparagraphs (ii) and (iii) are redesignated as (iii) and (iv), respectively. The altitude provision in the NBAA recommendation is adequately covered by subparagraph (2).

The Aircraft Owners and Pilots Association recommended that § 91.127(c)(5) be revised to provide that an Expected Approach Clearance Time (EAC), if received, would assume precedence over the Estimated Time of Arrival (ETA). If an EAC is received, air traffic control can be based upon this time, and an ETA need not be considered. However, if a pilot should fail to arrive at the approach fix before the EAC or ETA, descent should not be commenced until reaching the approach fix. Therefore, action is taken herein to amend subparagraph 91.127(c)(5) to the extent that a pilot shall commence descent upon reaching the fix, but not before the EAC or the amended ETA if no EAC has been received.

The Department of the Navy commented that the proposal did not specify whether the pilot should descend in a holding pattern to the initial penetration altitude before commencing an approach, or to commence the approach at the last assigned altitude or flight level. The Navy suggested wording to require that descent be executed in a holding pattern and that the approach be executed from the published initial approach altitude. Since descent is begun at the approach fix and published charts prescribe the altitude and distances for subsequent portions of the approach, pilots must determine whether descent in the holding pattern is necessary to comply with the procedure. Accordingly, a mandatory requirement for descent in a holding pattern is not considered necessary.

Several comments suggested minor word changes for the purpose of clarification. Several of these changes were adopted. Among these were the changes in subparagraphs (4) and (5) where "radio facility" was changed to "fix" in order to accommodate TACAN and DME fixes where approaches are commenced. In addition, § 91.127(c)(3)(iii) was changed to better reflect the intent that the climb to the altitude or flight level involved is to the altitude at which "expect-further-clearance" has been issued.

Three comments were received concerning the proposal to substitute the term "obtained" for "received" wherever "received" appears in the section in reference to a clearance given by ATC to the pilot. It was the Navy's view that neither of these terms necessarily implies "acknowledgement" either by definition or common usage. Accordingly, they recommended use of the word "acknowledged." ATA also objected to the use of the word "obtained" and recommended substitution of "acknowledged by the pilot" since this phrase would remove for the controller and the pilot all doubts such as those relative to clearance, expect-further-clearance, altitude, and route. In much the same manner, the Department of the Air Force indicated that it did not agree that the general usage of the word "obtained" indicates acknowledgement by the pilot. While the term "acknowledged" has considerable merit when used in accordance with normal operating conditions, its literal use in the radio failure section may preclude the use of a clearance that has been broadcast to the pilot of an aircraft experiencing radio transmitter failure only. It was not intended that a substantive change be created by the substitution of these words. The comments, however, indicate that substitution may be interpreted as a substantive change, particularly when considered in the light of other sections of Part 91.

If the term "acknowledged" was added by this rule, Part 91 would include reference to clearances that are "received," "obtained," and "acknowledged." Clarification of the terms "received" and "obtained" as used presently in Part 91 is under consideration within the Agency and may be the subject of a forthcoming proposal. Since any change in terminology, which would be construed as substantive, should be accomplished in all sections, the proposal to substitute terms in this section is withdrawn and the term "received" is retained.

In consideration of the foregoing, and for the reasons stated in the notice, § 91.127(c) of Part 91 of the Federal Aviation Regulations is amended, effective May 27, 1965, to read as follows.

This amendment is made under the authority of sections 307 and 313 of the Federal Aviation Act of 1958 (49 U. S. C. 1348 and 1354).

Amendment 91–15

Miscellaneous Amendments

Adopted: March 16, 1965 **Effective: April 1, 1965**

(Published in 30 F.R. 3637, March 19, 1965)

The purpose of this amendment is to add certain clarifying amendments to the recently recodified Federal Aviation Regulations. After the promulgation of Parts 1, 43, 65, 91, and 121 certain questions arose as to the meaning of the recodified language of the sections concerned. These amendments are issued to make it clear that no substantive changes were intended in the pertinent sections. So far as the Agency is aware, this amendment clears up all existing problems of this nature. However, if further clarifications of this type are necessary to preserve the substance of the former rules, the Agency will issue additional spot amendments as necessary.

The definition of the term "commercial operator" added to Part 1 in conjunction with the issuance of Part 121 is amended to make it clear that any "carriage by aircraft in air commerce of persons or property, other than as an air carrier or foreign air carrier or under the authority of Part 375" (of Title 14 of the U.S. Code) when performed "for compensation or hire" is a "commercial operation". The definition as issued, by combining the definition of "commercial operator" formerly contained in CAR 42 together with the note to § 42.1(a)(4) could be interpreted to exclude an operation for which a fee is charged if it is incidental to a person's other business and not "a major enterprise for profit." The amended definition avoids the possibility of such an interpretation.

Section 121.1(a)(5) is amended to clarify the applicability of Part 121 to a commercial operator. The language added is to make it clear that Part 121 does not apply to operations by a commercial operator such as ferry and training flights, that are conducted under Part 91. Paragraph (d) of § 121.1 is deleted since it is surplusage in view of the amended definition of "commercial operator" accomplished in this amendment.

Section 43.9 is amended to delete "preventive maintenance" from the recordkeeping requirements thereof since CAR §§ 18.20 and 18.21, upon which § 43.9 is based, did not include "preventive maintenance".

Sections 65.95(a)(1) and 91.161(b) are amended to make certain cross references consistent with the recodified regulations.

Section 91.27(a) is amended to avoid any implication that a civil aircraft may be operated without a valid airworthiness certificate. The possibility of such a misinterpretation existed under CAR § 43.10(a) as well as under § 91.27(a) as presently written.

A new § 91.49 is being added to Part 91 to make it clear that the requirement for an aural speed warning device contained in § 25.1303 and covered by SR 450A is a continuing operating requirement for all operations in air commerce with a transport category airplane. The preamble to the miscellaneous amendments issued in conjunction with the issue of Part 121 (29 F.R. 19096) stated that it was not necessary to recodify SR 450A. This conclusion was based on the belief that since the SR required that all transport category airplanes be equipped with the aural speed warning device by a date before April 1, 1965, there would be no need for a continuing operating rule. However, the Agency now believes that a continuing requirement is necessary since it is possible that a transport category airplane, type certificated before the aural speed warning device was required, could at some future date be used in air commerce though it is not now being so used (for example, an airplane now being used in a foreign country that is sold to a person who is subject to the FARs).

Section 91.87(g) is amended to make it clear that a pilot's determination to use a runway for landing other than the preferential runway assigned by ATC must be based on a determination by the pilot that the use of another runway is "in the interest of safety". As amended the section is consistent with former CAR § 60.18(b) upon which § 91.87(g) is based.

Section 91.103 is amended to make it clear that any person operating a civil aircraft of Cuban registry within the United States must, in addition to operating in controlled airspace, also obtain an "air traffic clearance" regardless of whether the flight is IFR or VFR and must comply with ATC instruction. As so amended, this section is consistent with SR 456, upon which it is based.

Section 91.117 is amended by adding an "or" between subparagraphs (1) and (2) of paragraph (h) to make it clear that a person need not meet the requirements of both subparagraphs in order to operate more than 50 feet below the minimum altitude. In this connection, it should be noted that when a pilot is operating under the conditions of either subparagraph he must execute a missed approach procedure whenever he cannot maintain visual reference to the ground or ground lights.

Paragraphs (e) and (f) of § 121.3 are amended so that the wording of these paragraphs, applicable to supplemental air carriers and commercial operators, is consistent with the wording of other paragraphs in § 121.3 that apply to domestic and flag air carriers.

Sections 121.93(a)(1) and 121.653(d) are amended to correct typographical errors.

A new paragraph (d) is added to § 121.289 to contain the substance of paragraph § 121.289(d) as set forth in the notice of proposed rule making for Part 121. While this paragraph is to a certain extent obsolete the Agency has decided that it should be added to make it clear that any extensions granted before February 1, 1965, continue in effect after the effective date of Part 121 and therefore, there would be no violation of the section until the extension expires.

The amendment to § 121.321 is made to ensure that only "type certification" and no other kind of certification is intended to be referred to therein, thus avoiding a possibility of confusion that exists under the present CAR sections and the section as recodified.

Section 121.365(b) is amended to make it clear that the inspections referred to throughout the subpart as "required inspections" are those set forth in the manual pursuant to § 121.369(b)(2) or (3).

The references to "supplemental" air carrier and "commercial operator" contained in the parentheses in § 121.425(d) are deleted to correct an inadvertent error since the section by its own terms applies only to domestic and flag air carriers.

The definitions of "month" and "year" contained in CAR Parts 40, 41, and 42 stated that as used in those Parts they meant "calendar month" or "calendar year", respectively. The Agency decided not to include definitions of "month" or "year" in the recodified regulations and therefore the word "calendar" is being inserted before the words "month" and "year", where used throughout the "Training Program", "Flight Crewmember Qualifications", and "Flight Time Limitations" subparts of Part 121.

Section 121.597(b) is amended to make it clear that a flight release may be prepared by either the pilot in command or the person authorized to exercise operational control over the flight. As amended the section is consistent with former CAR § 42.381(a) upon which § 121.597(b) is based.

Since this amendment is clarifying in nature, I find that notice and public procedure hereon are unnecessary, and it may be made effective on less than 30 days notice.

In consideration of the foregoing Chapter I of Title 14 of the Code of Federal Regulations is amended as follows, effective April 1, 1965.

This amendment is made under the authority of sections 306, 307, 313(a), 601 through 610, and 1202 of the Federal Aviation Act of 1958 (49 U.S.C. 1347, 1348, 1354(a), 1421 through 1430, and 1522).

Amendment 91-16

Flight Limitations in Proximity of Presidential Party

Adopted: March 23, 1965 **Effective: April 2, 1965**

(Published in 30 F.R. 4123, March 30, 1965)

The President is frequently required to travel extensively throughout the United States. In many cases, the public interest in the President causes the assembly on the ground of a large number of persons, and attracts numerous aircraft along the Presidential route and in the vicinity of areas visited by the President. Such conditions may derogate the safety of persons and property on the ground and create a hazard to air commerce. Additionally, on occasion, competent agencies of the United States Government responsible for the security of the President may determine that it is necessary to request that certain regulatory measures be taken by the Federal Aviation Agency. Sometimes such action must be taken on short notice and normal regulatory procedures cannot be employed. This regulation establishes an expeditious method of prescribing such air traffic limitations as may be necessary to safeguard the public and the President.

Since the circumstances associated with each particular situation are too varied, it is impossible to promulgate a rule to satisfy each unique case. Accordingly, the area of applicability, scope and limitations will be specified in a Notice to Airmen (NOTAM). These NOTAMs will be identified by the following introduction, "Flight restriction (appropriate geographical reference). Section 91.104 prohibits aircraft operation . . ." and will specify appropriate limitations and time of effectiveness.

I have determined that there is a requirement for the early adoption of this regulation for the safety of air commerce. Therefore, I find it contrary to the public interest to comply with the notice and public procedures provisions of the Administrative Procedure Act and that good cause exists for making this regulation effective in less than thirty days.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended by adding a new § 91.104 to read as follows.

This regulation becomes effective on April 2, 1965, and is adopted under the authority of section 307 of the Federal Aviation Act of 1958 (49 U.S.C. 1348).

Amendment 91-17

Operations at Airports Without Control Towers

Adopted: April 9, 1965 **Effective: May 17, 1965**

(Published in 30 F.R. 5507, April 17, 1965)

On October 13, 1964, a Notice of Proposed Rule Making, Notice 64-46, was published in the Federal Register (29 F.R. 14079) stating that the Federal Aviation Agency was considering amending Section 91.89 of the Federal Aviation Regulations by rescinding the requirement to maintain two-way radio communications with an FAA Flight Service Station.

Interested persons were afforded an opportunity to participate in the rule making through the submission of comments. Due consideration was given to all relevant matter presented.

Although a large number of comments submitted expressed agreement with the proposed rescission, many comments manifesting opposition were received from State and local aviation officials, pilot associations, and airport managers as well as interested individuals. Most of these comments questioned the issue of "false sense of security" that mandatory communications create in some pilots. While there is some possibility that the requirement of radio communications with a flight service station might create a false sense of security for those aircraft with operating radio equipment, the Agency does not consider that this is a decisive factor in considering rescinding the mandatory requirement.

As presently written, section 91.89 requires each pilot within a five-mile radius of an airport that has a flight service station to maintain two-way radio communication with that station, if the aircraft's radio equipment so allows, or to monitor the station if the equipment does not so allow. Thus, by its terms, the regulation places no requirement on the pilot who is flying an aircraft without radio equipment or with inoperative radio equipment.

After consideration of all of the aspects of this situation, the Agency believes that the rule should be adopted. Operators who have voluntarily installed radios should not be exposed to a violation while those who have not installed a radio are free to not communicate with the flight service station..

Several comments urged modification of the regulation in order to correct "inconsistencies" and urged, in addition, that total rescission was not the solution to the problems. The action taken herein is not synonymous with the dissolution of the airport advisory program on a voluntary basis; rather, it solely removes the mandatory two-way communications aspect which the Agency has determined is functionally unenforceable and continues the advisory program as a voluntary service.

In consideration of the foregoing, and for the reasons stated in the Notice of Proposed Rule Making, Section 91.89 of Part 91 of the Federal Aviation Regulations is amended, effective May 17, 1965, as hereinafter set forth.

This amendment is made under the authority of Section 307 of the Federal Aviation Act of 1958 (49 U.S.C. 1348).

Amendment 91–18

Alternate Airports

Adopted: April 21, 1965 **Effective: May 28, 1965**

(Published in 30 F.R. 6070, April 29, 1965)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to alter flight plan and fuel requirements pertaining to alternate airports. A Notice of Proposed Rule Making regarding this action was circulated as Federal Aviation Notice 64–45, and published in the Federal Register (29 F.R. 14034), on October 10, 1964.

Section 91.23 presently requires sufficient fuel be carried by civil aircraft operating in IFR conditions to fly from the first airport of intended landing to the alternate airport. Section 91.83 requires each person filing an IFR flight plan to include therein, an alternate airport, and sets forth criteria for the selection of an alternate airport.

In Notice 64–45 the Agency proposed to omit the requirement of including an alternate airport in the required flight plan information when the destination airport has an approach published in Part 97 and the weather there is forecast to be a ceiling at least 1,000 feet above the lowest initial approach altitude and the visibility to be at least three miles, or two miles more than the lowest authorized landing minimum visibility whichever is greater, from two hours before to two hours after the estimated time of arrival. Concomitantly, the Agency proposed to omit the requirement in § 91.23 for fuel to fly from the first airport of intended landing to an alternate airport if the same conditions are met that permit a pilot to omit an alternate from an IFR flight plan. The requirement of fuel for 45 minutes at normal cruise would remain unchanged.

The IFR alternate airport weather minimums presently contained in § 91.83(b) would be revised to assure an instrument approach capability where the weather would require that an instrument approach be made.

Interested persons were afforded an opportunity to participate in the rule making through the submission of comments. Due consideration was given to all relevant matter presented.

Only one comment directly opposed adoption of the proposed amendments stating that the private pilot has no dispatching system comparable to air carriers or military flights that would advise the pilot of deteriorating weather at his destination, and the unreliability of weather forecasts was emphasized. Therefore, the unskilled, unwary pilot would be encouraged to rely upon a potentially unreliable forecast and would fly without current information and without a sufficient fuel reserve to a destination where a landing would be inadvisable, but no alternative action would then be available. Consequently, there must be an inherent impairment of flight safety without a corresponding benefit conferred.

The Agency does not believe that the proposed amendments will derogate safety by misleading the unskilled or unwary. The applicable sections of the regulations pertain only to those pilots possessing instrument ratings, who may not be characterized as unskilled or unwary. As stated in a comment by the Aircraft Owners and Pilots Association, the prudent pilot will periodically check marginal conditions through the facilities of the Flight Service Station network to ascertain that the weather is as forecast. There would be no prohibition against a pilot designating one or more suitable alternates on his own volition, regardless of the forecast weather at his destination, so the proposal cannot be said to derogate safety. This amendment will remove the burden of carrying extra fuel in order to receive the benefit of an IFR flight plan when the designation of an alternate is unnecessary, and should enhance safety by removing this deterrent to filing an IFR flight plan when en route weather conditions are marginal.

The National Business Aircraft Association endorsed the proposal but emphasized the need of cooperation between the pilot, the FAA, and the Weather Bureau to assure the availability of current weather information to the pilot.

Bonanza Air Lines suggested specifying the weather forecast at departure to obviate the need of adding fuel en route, in the event of deteriorating weather conditions at the destination. This suggested alteration would compromise a safety factor inherent in the proposal, and is, therefore, not adopted.

All other responses, which constitute the preponderance of comments received, were favorable to the adoption of the proposal.

In consideration of the foregoing, and for the reasons stated in the Notice of Proposed Rule Making, Part 91 of the Federal Aviation Regulations is amended, effective May 28, 1965 as hereinafter set forth.

These amendments are made under the authority of Sec. 307 and 601 of the Federal Aviation Act of 1958 (49 U. S. C. 1348 and 1421).

Amendment 91–19

Effectiveness of Airworthiness Certificates

Adopted: June 17, 1965 **Effective: September 21, 1965**

(Published in 30 F.R. 8032, June 23, 1965)

The purpose of this amendment is to clarify the regulation governing the duration of airworthiness certificates with respect to the performance of alterations. In addition, the details of the revision to the format of airworthiness certificates as specified in the Notice on this matter are set forth herein. This action is based on the proposal published in the Federal Register (27 F.R. 12720) and issued as Draft Release 62–55.

While Draft Release 62–55 proposed to amend sections of Parts 1 and 43 of the Civil Air Regulations, these regulations have subsequently been recodified as Parts 21 and 91 respectively, of the Federal Aviation Regulations. These amendments are therefore made to the appropriate sections of the recodified parts.

As proposed in the Draft Release, § 21.181(a) (formerly § 1.64) is amended to make it clear that an airworthiness certificate remains in effect as long as alterations, as well as maintenance, are performed in accordance with Parts 43 and 91 of the Federal Aviation Regulations. In addition, § 91.163 (formerly § 43.20) is amended to include alterations within the prohibition provided therein. In connection with these amendments, there were comments suggesting that the regulations should make it clear that alterations must also be "accomplished in accordance with the pertinent portions of the applicable airworthiness requirements. . . ." As amended, the regulations now require that alterations be accomplished in accordance with Part 43, which in turn requires that alterations be performed on the basis of approved technical data and that after alteration the aircraft, airframe, aircraft engine, propeller or appliance worked on must be at least equal to its original or properly altered condition. Thus, under the current provisions of Part 43 the applicable airworthiness requirements must be considered during the performance of alterations. For this reason, the Agency does not believe that a general reference to the applicable airworthiness requirement as suggested is necessary or would serve any useful purpose.

At the time that the Draft Release was issued, the term "maintenance" included preventive maintenance. However, as now defined, maintenance does not include preventive maintenance. Therefore to make these regulations consistent with the proposal, §§ 21.181(a) and 91.163 are amended to specifically include preventive maintenance.

In addition to the foregoing, the proposal would have amended the regulation governing the duration of airworthiness certificates to require that an aircraft be in a condition for safe operation in addition to requiring that maintenance and alterations on the aircraft be performed in accordance with Parts 43 and 91 of the Federal Aviation Regulations. However, since the requirement for the performance of maintenance and alterations in accordance with Parts 43 and 91 is designed to assure that the aircraft is in a condition for safe operation, the proposed amendment appears to be unnecessary and could be misleading. For these reasons, the regulation has not been changed as proposed.

Certain other clarifying changes proposed in Draft Release 62–55 have subsequently been incorporated into the regulations. In this connection, during the recodification program a clarification was incorporated into § 21.181(a) specifying that an airworthiness certificate is effective as long as the aircraft for which it is issued is registered in the United States. Moreover, § 91.27(a) was recently amended to provide the clarification concerning special flight permits which was proposed in Draft Release 62–55.

Draft Release 62–55 proposed that the regulations (formerly § 43.20) be amended to require that an aircraft be inspected and found to be in a condition for safe operation whenever the approved operating limitations for the aircraft had been exceeded. The comments received concerning this proposal pointed out the problems involved in establishing compliance with this requirement, indicating that it was unworkable and subject to many interpretations. On the other hand, as recodified, the regulations now expressly provide that the pilot in command is responsible for determining whether his aircraft is in condition for safe flight and require him to discontinue the flight when unairworthy mechanical or structural conditions occur. In view of the foregoing the proposed requirement is not being adopted.

The Draft Release referred to the Agency's plans to revise the format of airworthiness certificates. In this connection, as proposed, the new format will reflect the amendments set forth herein and will provide for the enumeration of any exceptions to full compliance with the applicable comprehensive and detailed national airworthiness requirements in accordance with the Convention on International Civil Aviation (ICAO). It was proposed to add an explanatory NOTE to the regulations to the effect that the airworthiness certificate would identify any exemptions from the applicable airworthiness requirements that had been granted for an aircraft. However, the Agency does not now consider that such a NOTE is necessary or appropriate. Moreover, it has subsequently been determined by the Agency that at this time the revised airworthiness certificate need only be issued for aircraft certificated in the normal, utility, acrobatic, and transport category. In addition, it should be emphasized that this amendment does not require the exchange of present certificates. Certificates in the new format will simply be issued in the future to persons applying for airworthiness certification.

There was also a general comment made with respect to the need for definitions of the terms "airworthy" and "airworthiness" in the regulations. While the Agency is aware of the problems referred to in this comment, the recommended action goes beyond the scope of the Notice in this matter.

Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all relevant matters presented.

These amendments are issued under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, 1423).

In consideration of the foregoing, Parts 21 and 91 of the Federal Aviation Regulations are amended effective September 21, 1965, as follows.

Amendment 91-20

Altimeter System Requirements

Adopted: June 21, 1965 **Effective: July 29, 1965**

(Published in 30 F.R. 8259, June 29, 1965)

The purpose of this amendment to Parts 23, 25, 43, and 91 of the Federal Aviation Regulations is to increase safety and improve airspace utilization by revising design requirements dealing with airplane altimeter systems and by prescribing periodic inspections of systems installed in airplanes operating under IFR conditions. This action was published as a Notice of Proposed Rule Making (29 F.R. 3310) and circulated as Notice 64-14 dated March 12, 1964.

The need for the amendment results from recognition that altimeter system accuracy depends on good system design and is adversely affected by operations at higher altitudes and at higher airspeeds. Further degradation of system accuracy occurs in service caused primarily by static pressure system leaks and by instruments that have deviated from their original calibrations.

Agency action to upgrade altimeter system accuracy began with Notice of Proposed Rule Making (27 F.R. 4340) circulated as Draft Release No. 62-22 dated April 27, 1962. Among other provisions, Draft Release 62-22 proposed that the accuracy of the altimeter system of each new type aircraft be determined by an in-flight calibration of a number of production aircraft, with further provisions for inservice checks of altimeter system performance. Because standard methods of calibration remained to be developed, and because the project scope indicated that the end result might best be achieved by increments in several separate rule making actions, Draft Release No. 62-22 was withdrawn as a Notice of Proposed Rule Making although it did state the Agency's long-range program to upgrade altimeter system performance. Notice No. 64-14, on which this amendment is predicated, accordingly was limited in scope to design and check of airplane static pressure systems and test of altimeters.

Subsequent to Notice No. 64-14, the Federal Aviation Agency recodification program was completed. As explained in the Notice, recodification has not altered the substance of the rules. CAR § 3.665 is now FAR § 23.1325; CAR § 4b.612(b) is now FAR § 25.1325; proposed CAR § 18.31 and a portion of proposed FAR § 91.170 have become FAR Part 43, Appendix E. The appropriate FAR identification will be used hereinafter.

In response to the Notice of Proposed Rule Making, the Agency received several comments objecting to the overall proposed changes. The main thrust of these unfavorable comments was that the new rules would impose costs disproportionate to resulting increases in reliability, utility, or safety and that the accident record of airplanes operated under the general operating rules did not justify the proposed changes.

The Agency must reject any contention that revised rules upgrading the accuracy of altimeter systems are unwarranted. Surveys have revealed that a high percentage of airplanes have leaky static pressure systems. Accident reports in certain instances have pointed to altimeter errors; in other unexplained accidents, errors in instruments dependent on static pressure source may not be ruled out as contributing causes. If increased safety and more effective airspace utilization are to be achieved, all airplanes operated in IFR conditions must meet the same altimeter system equipment installation standards to operate in controlled airspace.

The changes and comments relating to the various specific parts of the Federal Aviation Regulations are discussed in the following paragraphs.

FAR § 23.1325. The Notice of Proposed Rule Making provided that the influence of airplane characteristics not seriously affect the accuracy of instruments having static pressure connections, further specified certain static system design and installation details, required a system proof test, and made provision for countering icing conditions.

Paragraph 23.1325(a) has been amended to specify that static pressure connections be vented so that external forces least affect instrument accuracy. This change relaxes the requirement of the Notice and parallels the wording in the comparable section of Part 25.

One commentator would delete the system proof test on the grounds that it does not reveal errors caused by a poorly designed or located static source, and that, in any event, such small static leaks as it might divulge do not result in static system errors. The Agency, however, considers the proof test a necessary part of certification because, after the design is completed, system leakage becomes the major criterion which cannot be ignored until its effect is proven inconsequential.

Two commentators objected to proof testing the static pressure system in each production airplane. The rule, however, does not require test of each production airplane although that would be one way to demonstrate conformity to the approved type design. As suggested by another commentator, sample testing and production flight check could be another acceptable means of showing conformity if there were a showing of an adequate quality control system and compliance with the equipment function and installation requirements of § 23.1301.

The Agency does not concur with various comments recommending that it adopt the Air Force static system leakage rate at an arbitrary specified altitude with associated instruments disconnected. Since many static system leaks occur at instrument disconnect points, it is considered that a realistic test for Part 23 airplanes should be made with the instruments connected. Subparagraph 23.1325(b)(2) has been amended, however, to allow a reasonable leakage loss tolerance with associated instruments connected at the airplane maximum operating altitude.

With regard to negating the effect of icing conditions, one commentator recommended deleting the requirement altogether in low-performance airplanes operating under VFR conditions. Two other commentators recommended that a protected alternate source of static pressure be allowed, while a fourth recommended use of an optional ice-free static pressure source of less accuracy where calibration is given the pilot.

Since static vent icing may occur during both VFR and IFR conditions with hazardous consequences, the Agency believes there is ample justification for anti-icing as a certification requirement on all airplanes employing a static pressure system for required instruments. In response to the comments, the proposed rule has been expanded to permit the use of an alternate static source having a prescribed accuracy tolerance, and, where needed, a correction card.

FAR § 25.1325. The Notice of Proposed Rule Making altered the existing rule in part by adding an anti-icing provision, by specifying certain installation and design details plus a system proof test, and by allowing an altimeter correction device bypass instead of an alternate altimeter system.

Several commentators contended that the proof test would be unrealistic because no tolerance was provided and it was unclear whether the specified test pressure referred to differential or absolute pressure. Further comments variously recommended adoption of military requirements for leakage rate with associated instruments disconnected, adoption of a 400-foot per minute rate at 40,000 feet, and adoption of different system tolerances for pressurized and unpressurized airplanes. The Agency agrees with the comments concerning tolerance and pressure ambiguity, and, accordingly, has amended the requirement for type certification to include proof test at a pressure differential corresponding to the certificated maximum operating altitude. The rule has been further amended to specify a reasonable maximum leak rate of 100 feet per minute with associ-

ated instruments connected. The Agency does not agree with the recommendation for different system tolerances for pressurized and unpressurized airplanes since an altimeter system must perform satisfactorily in the most critical range when the airplane pressurization system fails.

The Agency does not concur with the contention of one commentator that the Notice is arbitrary in specifying that pressure remain unaltered when exposed to continuous and intermittent maximum icing conditions. An airplane is certificated for a certain severity of icing condition which applies to all required installations including the altimeter.

Further comments to the effect that automatic correction devices be required for high altitude-high speed airplanes and that correction cards be used where automatic correction devices are not available, were either beyond the scope of the notice or already covered by current functional and installation requirements.

It was suggested that the intent of the requirement for a correction device bypass or alternate systems be clarified. The Agency feels, however, that the objective of the requirement is adequately stated and that it would be impractical to be more specific in an attempt to cover all possible design features.

***FAR Part 43, Appendix E.* The Notice of Proposed Rule Making described new altimeter instrument tests for scale error, hysteresis, after effect, friction, case leak, position error, and barometric scale error.**

In the interest of organizational unity, this Appendix has been expanded to encompass the details of the static pressure system test and inspection as proposed in § 91.170 in addition to the altimeter instrument tests.

In response to several comments, the static pressure system leakage test has been amended to allow a leakage tolerance instead of the requirement that the system be leak free.

A number of commentators objected to the cost of upgrading altimeter standards and recommended that tests for scale error, hysteresis, and friction be limited to the maximum operating altitude of the airplane in which installed. The Agency concurs and the rule is amended accordingly.

One commentator suggested that all standard atmosphere data be taken from the same source. The Agency concurs and has used "U.S. Standard Atmosphere, 1962" as the sole source for altitude-pressure-tolerance values.

A comment contending that five test altitudes for low-performance airplanes is sufficient was not supported by any justification. Also a comment suggesting that test points be selected that fall precisely on the instrument 20 foot scale marks was considered unjustified since in normal test procedures, one quarter of a scale division is not difficult to estimate.

The Agency agrees that the 12-hour rest period at 29.92 inches Hg is an unnecessary hardship and has deleted it as a preliminary requirement in the scale error test.

One commentator recommended deletion of tests for hysteresis, after effect, friction, position error, and barometric scale error since scale error and case leak tests are sufficient to determine if the altimeter should be returned to service. Another comment stated that the barometric scale error test was too extensive. The Agency concurs that the position error test is unnecessary and it has been deleted. Other relief has been afforded by changing specified test points in the hysteresis test and reducing the barometric scale error test to only eight test pressures. The test for hysteresis, after effect, friction, and barometric scale error are considered essential for checking the quality of the instrument and its indicating accuracy consistency and, therefore, have not been deleted.

The Agency did not adopt a recommendation that the 20,000 feet per minute rate of pressure change for the scale error test be reduced since no justification was presented.

Several commentators suggested creating new classes or categories of altimeters for different altitude ranges, with less stringent test criteria for those operating at the lower altitudes. The Agency does not concur in these recommendations since, for IFR operation, altimeter system test standards must be the same for all airplanes regardless of altitude of operation or whether the airplane is pressurized.

The Agency agrees with a recommendation that the altimeter be vibrated to remove friction effect before taking test readings and has amended the test procedure accordingly.

However, a further recommendation that the vibration frequency be specified, if adopted, would impose an unnecessary burden since the purpose of vibration is to eliminate errors due to friction within the instrument.

In reply to a comment pointing to the impracticality of conducting each altimeter test at 29.92 inches Hg and 25 degrees C, the final rule has been changed so as to delete the 29.92 inches Hg pressure requirement and to prescribe appropriate allowances to be made when test temperatures are substantially different from an ambient of 25 degrees C.

FAR § 91.170. The Notice of Proposed Rule Making proposed this new requirement to provide for repetitive checks of the static pressure system in all general aviation airplanes and of altimeter instruments installed in airplanes operating under IFR conditions other than those coming under Part 121.

The amended § 91.170 properly charges the operator with responsibility for insuring that the airplane has been tested and inspected prior to flight in IFR conditions. The specific static pressure system test requirements have been removed from this section and incorporated into Part 43, Appendix E in order that the complete altimeter system test and inspection procedure be contained under one appropriate heading.

Three commentators indicated some confusion between the proposed two-year inspection and the periodic airworthiness inspection of § 91.169 for aircraft having dual altimeters. New § 91.170 has been reworded to delete reference to periodic inspections and emphasize that the biennial special altimeter system inspection is a requirement independent of the annual or 100-hour inspection required by § 91.169. The final rule also emphasizes that each static system of a dual system, as well as each altimeter instrument, is to be inspected.

Two commentators pointed to hardships due to a shortage of Class I instrument repair stations. It is the Agency's position, however, that the new inspection requirements impose no undue hardship on operators since the inspection interval is long, and operators may be scheduled to place airplanes at repair stations. In any event, only IFR operations would be curtailed should the required inspection not take place. Some relief is afforded in the final rule by permitting the altimeter tests to be made by an appropriately rated repair facility rather than a certificated Class I instrument rated repair station.

Several commentators recommended in effect that the rule be extended to prescribe accuracy tolerances and periodic accuracy checks of instruments used in VFR conditions. While the recommendations have merit, they go beyond the scope of present rule making. Under the current regulations, when VFR flight conditions prevail, collision avoidance is primarily dependent on visual means rather than vertical separation by altimeter information.

The final rule has been changed to provide for a § 91.170 compliance date one year from the effective date of the amendment.

Interested persons have been afforded an opportunity to participate in the making of this amendment. All relevant matter submitted has been fully considered.

In consideration of the foregoing, Parts 23, 25, 43, and 91 of the Federal Aviation Regulations are amended effective July 29, 1965, as hereinafter set forth.

This amendment is made under the authority of section 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1422).

Amendment 91–21

Flight Test Areas

Adopted: June 24, 1965 **Effective: July 31, 1965**

(Published in 30 F.R. 8472, July 2, 1965)

A Notice of Proposed Rule Making was published in the Federal Register (29 F.R. 14368) on October 17, 1964, stating that the Federal Aviation Agency proposed to eliminate the requirement of obtaining an approved flight test area for the flight testing of aircraft. The period for the submission of comments was extended from November 23, 1964, to

December 31, 1964 (29 F.R. 15959) at the request of the Aerospace Industries Association of America (AIA) which stated that it was unable to consolidate serious differences of opinion among its members with respect to the proposal.

The AIA and the Society of Experimental Test Pilots objected to the prohibition of flight tests over "any congested area of a city, town, or settlement, or over any open air assembly of persons," in that these terms require further clarification and may be stringently interpreted as applying to any accident resulting in injury to persons or property on the ground. Because recognition and avoidance of congested areas may be difficult while conducting flight tests of a high-performance aircraft at high altitudes, they contend that this terminology may make administration of the rule impractical and raise the probability of finding a violation of the rule when damage to nonparticipating parties occurs. It is necessary that flight tests should be performed to assure safety of flight; and it is recognized that, in extreme cases, parts may impact at considerable distances from a projected flight path.

The object of this regulation is not to provide a convenient means of finding violations for accidents involving nonparticipating parties but to confine flight test operations to areas whereby the least number of persons and property may be subjected to possible injury from this hazardous operation. It is expected that an operator will select an area and plan a flight path therein to achieve this object. It is, therefore, determined to revise the wording of § 91.93 to prohibit flight tests except over open water or sparsely populated areas. This revision will retain substantially the same relevant terminology that was adopted and defined in the original rule in 1957 (22 F.R. 1277, 2576).

Both of these commentators objected to proposed § 91.93(b), regarding potential impact areas, as being indefinite and arbitrary. This objection has merit and § 91.93, as revised, will more simply state a requirement of the regulation, while leaving the responsibility for avoiding operations hazardous to persons and property on the ground upon the aircraft operator.

These commentators and the Pacific Airmotive Corporation suggested that the Agency should continue to approve flight test areas for operators who so desire. As stated in the Notice, the Agency sees no benefit to be derived from the continuation of formally approved areas. The public is not adequately informed of the existence of an approved area, and the confinement of operations therein does not in itself enhance safety or alter the responsibility arising from injury to nonparticipating parties. The Agency will continue to work with the operators to develop procedures and to help them locate areas suitable for flight testing. Additionally, the Agency may impose any necessary operating restrictions, including locality, on flight tests in the interest of safety in particular instances. Therefore, the Agency will be available for assistance in the operator's selection of suitable areas but will not designate or approve flight test areas.

The AIA also recommended that the definitions of "flight test" and "basic airworthiness" as contained in the current § 91.93, be incorporated in Part 1. The Agency presently determines when a flight test is required and so stipulates on the appropriate certificate or production schedule. Military regulations are specific as to when flight tests are required. Section 91.167, as amended, differentiates between a flight test and an operational check applicable to aircraft which have been repaired, or overhauled. Therefore, the retention of the definitions, as recommended by AIA, would serve no useful purpose and they are omitted.

The Air Transport Association commented that because of the location of airports and maintenance facilities from which they operate, air carriers must conduct flight tests, in part, over congested areas and in high density traffic areas. "Flight tests" conducted by the air carriers are more in the nature of operational checks performed in accordance with § 91.167 after overhaul or maintenance, to which § 91.93 is not applicable.

The Hiller Aircraft Company suggested that the term "high density air traffic" was too indefinite, and that a takeoff and landing at an airport may necessarily involve flight through substantial air traffic. The Airline Pilots Association made a similar comment and additionally suggested that flight tests be prohibited in the vicinity of designated airways or terminal areas. It therefore appears that the confinement of flight test operations to areas having light air traffic may better convey the intent of the regulation. A prohibition of flight tests in designated airways or terminal areas, however, appears to be too restrictive and unrealistic of the necessity to make landings and takeoffs at airports.

The Aircraft Owners and Pilots Association suggested that the responsibility for the operational flight check of an aircraft after repairs or alteration should be with the person authorized to return the aircraft to service and the requirement for this check should be placed in Part 43. Another comment suggested that the operational flight check should involve a check of the parts which have been altered or repaired. The purpose of § 91.167 is to require an operational check of the aircraft before it is used to carry passengers (other than crew members) and therefore should remain in Part 91 as an operating rule; however, this section has been reworded to clarify the relationship of the operational check to the repairs or alterations performed in accordance with Part 43.

One commenter suggested the consideration of a provision limiting flight tests to VFR conditions, day time only. It is the Agency's practice to specify these limitations when granting an experimental certificate; however, these limitations may be omitted in subsequent test flights, as appropriate, when it may be desirable to conduct the flight test under other conditions. Inclusion of these limitations in the rule is neither necessary or desirable, and will therefore be omitted.

Section 91.93 has been revised to better convey the original intent of requiring flight tests to be conducted in a manner that will minimize the danger to other aircraft and to persons and property on the ground. Section 91.167 has been revised to clarify the differences between a flight test and an operational check, and the relationship of the operational check to the repairs or alterations necessitating the check. These revisions are not intended to alter the substantive content of the rule as proposed in the notice.

Approximately 85 percent of the comments concurred with the proposal without suggesting major changes thereto and one commentator opposed any amendment to the current rule.

Interested persons have been afforded an opportunity to participate in the proposed rule making through the submission of comments. Due consideration was given to all comments received.

In consideration of the foregoing, effective July 31, 1965, §§ 91.93 and 91.167 of Chapter I of Title 14 of the Code of Federal Regulations are amended to read as follows.

These amendments are made under the authority of Sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348 and 1354).

Amendment 91-22

Emergency Exits for Airplanes Carrying Passengers for Hire

Adopted: June 28, 1965 **Effective: August 2, 1965**

(Published in 30 F.R. 8516, July 3, 1965)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to set forth more definitive rules concerning the number of additional occupants that may be carried on a transport category airplane carrying passengers for hire for each additional approved exit installed, to provide for a corresponding decrease for each such exit eliminated, and to specify the order in which existing exits may be eliminated.

This amendment is based on a notice of proposed rule making (Notice 64-1) issued on January 3, 1964, and published in the Federal Register on January 10, 1964 (29 F.R. 266).

As stated in Notice 64-1, the Agency believes that the present requirements of § 91.47 (formerly Special Civil Air Regulation SR-389B) have proved to be inadequate for several reasons such as—

(1) The necessity to determine "comparability" with Type II or Type IV exits prescribed in section 25.807 (former CAR § 4b.362); and

(2) The equal weight given to exits of unequal effectiveness in determining the additional number of occupants authorized.

The Agency proposed to amend these provisions so that in determining the additional number of occupants authorized for each added exit effect would be given to factors such as exit size, location, and access to the main aisle. For example, the Agency proposed to allow 12 additional occupants for each additional floor level exit whereas for the less effective window exits either 8 or 5 additional occupants would be authorized depending on whether the exit was over a wing.

Except for the specific comments hereinafter discussed, all of the comments received were favorable to the proposed amendment.

One comment objected to permitting any increase in passenger occupancy based on the addition of window-type exits. This commentator also objected to permitting increased occupancy based on additional door-type exits unless each such exit is manned by a qualified flight attendant. The Agency agrees that window-type exits are much less effective than door-type exits and this amendment reflects this belief by allowing only 5 or 8 additional occupants for each such exit as compared to twelve additional occupants for a door-type exit. However, the Agency does not agree that no consideration should be given to additional window-type exits since such exits have proved to be of value in actual emergencies and in emergency evacuation demonstrations that were made in connection with the recent general amendments on that subject (Amendments 25-1, 91-13, and 121-2, published in the Federal Register on March 9, 1965, 30 F.R. 3200). These amendments also require the fitting of ropes or an equivalent approved device at such exits to facilitate emergency egress.

With regard to floor level exits, current regulations (§ 121.309) require a chute or equivalent device suitable for rapid evacuation of passengers for each such exit. However, the Agency does not agree that a flight attendant should be required for each floor level exit. As pointed out in response to a similar comment made in connection with the recent emergency evacuation amendments, in survivable accidents one or more flight crewmembers likely would be available to assist in the emergency evacuation of occupants.

One comment proposed that a provision be added prohibiting the removal of any approved exit that would be required by the current applicable transport category airworthiness standards (FAR § 25.807). It was stated that this change would assure that progress already made would not be lost and that the minimum level of safety would continue to be provided. The Agency does not agree that such a complete prohibition is necessary but rather believes that the priority schedule for removal of exits included in this amendment will accomplish basically the same purpose.

One commentator stated that this amendment should not be adopted unless there is an effective regulatory requirement for evacuation demonstration of the kind and quality suggested by the same commentator in connection with the emergency evacuation amendment referred to above. The Agency believes that with the adoption of the emergency evacuation amendment there are now such realistic regulatory requirements.

One commentator addressed two comments to alleged deficiencies in current regulations that are outside the scope of this notice and that would require further regulatory action. However, the Agency believes that the recent emergency evacuation amendment will overcome the first of these alleged deficiencies since any seating configuration that would prevent compliance with the evacuation demonstration requirements would necessarily have to be changed. The second alleged deficiency relates to the present exit requirements of § 25.807. Since this comment is outside the scope of this amendment, it will be considered by the Agency in connection with current studies it is making to determine whether further regulatory action is needed in that area.

In addition the word "effective", which was inadvertently omitted when the section was recodified, is being inserted in the parenthetical clause in paragraph (a). This amendment makes it clear that this section also applies to each large airplane type certificated after April 8, 1957, on the basis of an application submitted before that date.

Interested persons have been afforded an opportunity to participate in the making of this regulation and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, § 91.47 of Part 91 of the Federal Aviation Regulations is hereby amended effective August 2, 1965, to read as follows.

This amendment is made under the authority of sections 313(a), 603, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1423, 1424).

Amendment 91–23

Airborne Distance Measuring Equipment; Foreign Aircraft

Adopted: August 11, 1965 **Effective: September 18, 1965**
(Sec. 91.43)
Effective: September 21, 1965
(Sec. 91.161)

(Published in 30 F.R. 10288; August 19, 1965)

The purpose of this amendment is to require foreign civil aircraft when operating within the 48 contiguous States and the District of Columbia to be equipped with distance measuring equipment (DME).

This amendment is based on a notice of proposed rule making (Notice 64–53) issued on December 18, 1964, and published in the Federal Register on December 23, 1964 (29 F. R. 18232). The comment period for the original notice expired on February 22, 1965. However, subsequent to that date, it came to the Agency's attention that some foreign air carriers, who did not receive a copy of the notice, desired to make comments on the proposal. The Agency extended the comment period until May 31, 1965, by a notice published in the Federal Register on May 12, 1965 (30 F.R. 6541).

Most of the comments received either approved of, or offered no objection to, the Agency's proposal to require foreign civil aircraft to be equipped with DME when operating within the 48 contiguous States and the District of Columbia. One comment, while offering no objection to the proposal to require DME for operations above 24,000 feet MSL, did object to requiring installation of DME in all turbopropeller powered aircraft after June 30, 1966, regardless of the altitude flown. The Federal Aviation Regulations (§ 121.349(c)) now require all United States air carrier and commercial operator turbopropeller powered airplanes to be equipped with DME regardless of the altitude flown. The VORTAC system of air navigation is premised on the fact that, for maximum safety and efficiency, distance information from a DME is as important as the bearing information from the VOR. Furthermore, the VORTAC RHO Theta System of short range navigation has been adopted not only by the United States, but also by all members to ICAO as the international standard until 1975. In view of the above, the Agency does not agree that an exception should be made for turbopropeller powered airplanes operated by foreign air carriers below 24,000 MSL.

Several commentators stated that while they did not object to the requirement for the installation of DME equipment, the proposed mandatory installation date of December 31, 1965, did impose a substantial hardship in view of the short period remaining to arrange for the installation of the equipment. The Agency believes, after reviewing these comments, that the foreign air carriers concerned have made a bona fide effort to arrange for installation of the DME equipment as soon as possible assuming this amendment is adopted, and that any inability to meet the proposed December 31, 1965, date would be due to difficulty beyond their control . Accordingly, the Agency has decided to delay the initial date for compliance with the requirement for installing DME for operations above 24,000 feet MSL and for all turbine engine powered airplanes until December 31, 1966.

Section 91.161 is being amended by adding thereto the word "civil" before the word "aircraft" to correct a typographical omission that occurred when that section was recently amended in amendment 91–19. This amendment to 91.161 is being made effective September 21, 1965, to coincide with the effective date of amendment 91–19.

Interested persons have been afforded an opportunity to participate in the making of this amendment (29 F.R. 18232, Notice 64–53), and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, sections 91.43 and 129.17 of the Federal Aviation Regulations are amended effective September 18, 1965, and section 91.161 thereof, is amended effective September 21, 1965, as follows.

This amendment is issued under the authority of sections 313(a), 307, and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1348, and 1421).

Amendment 91–24

Presence of Crewmembers at Duty Stations

Adopted: October 8, 1965 **Effective: October 15, 1965**

(Published in 30 F.R. 13120, October 15, 1965)

The purpose of this amendment is to clarify the present requirements of Parts 91, 121, and 127 of the Federal Aviation Regulations relating to the presence of flight crewmembers at the controls of the aircraft during flight time.

As presently written, the rules prescribe that each required flight crewmember on flight deck duty be present at his station while the aircraft is taking off or landing, and while it is en route unless his absence is necessary for the performance of duties in connection with the operation of the aircraft.

Since the adoption of this rule, the Agency has endeavored to make it clear that flight crewmembers' physical alertness and comfort are necessary for the performance of duties in connection with the operation of the aircraft, within the meaning of the rule. There have, however, been occasional misunderstandings of the intent. For this reason the Agency considers that the safety purposes of the present regulation would better be achieved by amending the regulations specifically to provide for the necessary absence of crewmembers from their duty stations when required for physical alertness and comfort.

For the foregoing reasons it is determined that notice and public rule-making procedures are unnecessary and impractical in the case of this amendment and that good cause exists for making it effective within less than 30 days.

In consideration of the foregoing, § 91.7(a) is amended, effective October 15, 1965.

This amendment is made under the authority of §§ 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421).

Amendment 91–25

IFR Radio Communications

Adopted: December 7, 1965 **Effective: January 10, 1966**

(Published in 30 F.R. 15322, December 11, 1965)

The purpose of this amendment is to clarify the requirement for a pilot to report the passing of designated reporting points while operating under radar control.

Section 91.125 of the Federal Aviation Regulations requires the pilot to report by radio as soon as possible the time and altitude of passing each designated reporting point or the reporting points specified by air traffic control.

The separation and control of air traffic under IFR is predicated upon knowledge of the position of aircraft in flight. The aircraft's position has been obtained through position reports transmitted by the pilot. Therefore, the regulations have, for years, required the pilot to communicate the passing of each designated reporting point as specified on charts or by ATC. In many areas today, surveillance radar permits ATC to observe the position of aircraft which have been identified on the radar display. This has obviated the need for the pilot to make routine position reports when operating under radar control. In this environment, pilots have been advised that they are in "radar contact" and that they should discontinue making position reports until advised they are no longer under radar control.

When radar control was implemented it was contemplated that the pilot should automatically omit making position reports when advised that ATC has radar contact, and should automatically resume making reports when informed that the radar service is terminated or the radar contact is lost. However, it was determined to allow a trial period during which the controller advised the pilot when position reports were no longer necessary. The results of this procedure during the trial period indicate that it is now appropriate to implement the procedure of automatically omitting position reports while under radar control.

Since this amendment is clarifying in nature and imposes no additional burden on any person, it is determined that notice and public procedure hereon is unnecessary.

In consideration of the foregoing, Section 91.125(a) of Chapter I of Title 14 of the Code of Federal Regulations is amended, effective January 10, 1966, to read as follows:

This amendment is made under the authority of Section 307 of the Federal Aviation Act of 1958 (49 U.S.C. 1348).

Amendment 91-26

Change of Name of "Periodic Inspection" to "Annual Inspection", and Clarification of 100-hour Inspection Requirement

Adoped: February 25, 1966 Effective: April 2, 1966

(Published in 31 F.R. 3336; March 3, 1966)

These amendments change the name "periodic inspection" to "annual inspection" throughout the Federal Aviation Regulations, and make clear the conditions under which an inspection satisfying the 100-hour inspection requirement of § 91.169(b) also satisfies the annual (formerly "periodic") inspection requirement of § 91.169(a). No substantive change is made by these amendments.

These amendments are based on, and are issued for the reasons contained in, Notice 65-26, published in the Federal Register (30 F.R. 13167), on October 15, 1965. All comments received in response to Notice 65-26 favored the changes proposed therein.

Comments not directly related to the notice suggested (1) that the references to Part 43 in § 91.169 be changed to references to Part 65, (2) that the "excess time" provision of § 91.169(b) be deleted, and (3) that the authority of the holder of an inspection authorization to approve products for return to service be made explicit in § 65.95(a)(2). These comments do not affect the disposition of Notice 65-26 and will be given future consideration.

In consideration of the foregoing, Chapter I of Title 14 of the Code of Federal Regulations is amended, effective April 2, 1966, as hereinafter set forth.

These amendments are made under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421).

Amendment 91-27

Increased Maximum Certificated Weights for Certain Airplanes When Operated in Alaska by Air Carriers and the Department of Interior

Adopted: March 25, 1966 Effective: May 2, 1966

(Published in 31 F.R. 5250, April 1, 1966)

The purpose of this amendment is to incorporate the provisions of the present Special Federal Aviation Regulations (SFAR) 12 (formerly Special Civil Air Regulation SR-399D) into Part 91 of the Federal Aviation Regulations. SFAR 12 permits the use of certain airplanes in Alaska, which were type certificated under Aeronautics Bulletin 7-A or the normal category of Part 4a, at takeoff weights greater than the maximum certificated takeoff weights determined during type certification.

On October 27, 1965, a notice of proposed rule making (Notice 65-31) was published in the Federal Register (30 F.R. 13627) stating the above purpose. Interested persons were afforded an opportunity to participate in the rule making through submission of comments. Due consideration was given to all relevant matter presented.

One comment suggested that the Agency should consider certain other factors prior to, and periodically following, any such authorizations including, (1) the age and condition of the aircraft, (2) runways and terrain of operation, (3) strength and performance requirements effective at the time of original certification, and (4) the history of accidents involving aircraft operating under SFAR 12. Items (1) and (2) are in substance the same as proposed § 91.38(c). The preamble of the original Special Civil Air Regulation, SR-337, explains the basis for the applicable requirements adopted at that time and now proposed at § 91.38(b)(2), (3), and (4). These requirements provide the level of safety recommended by item (3) of the comment. With regard to item (4) the Agency does not know of any accidents, in the past 15 years due to authorizations made under SFAR 12, and in fact this was one reason for proposing that SFAR 12 be incorporated in FAR 91.

The notice also solicited comment on the need and desirability of extending the scope of the rule to include commercial operators or others operating in Alaska. No such comments were received and no further consideration has been given to this matter.

In consideration of the foregoing, effective May 2, 1966, Part 91 is amended by adding a new section 91.38 after § 91.37.

This amendment is made under the authority of sections 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424).

Amendment 91-28

Airborne Distance Measuring Equipment; Civil Aircraft (Including Foreign Civil Aircraft) Within Alaska and Hawaii

Adopted: April 15, 1966 **Effective: July 1, 1966**

(Published in 31 F.R. 6265, April 23, 1966)

The purpose of this amendment is to extend the airborne distance measuring equipment (DME) requirements, now in effect in the 48 contiguous States and the District of Columbia, to civil aircraft (including foreign civil aircraft) operating in the VOR air navigation system in the States of Hawaii and Alaska.

This amendment was proposed as a notice of proposed rule making (Notice 65-38) issued on December 6, 1965, and published in the Federal Register on December 10, 1965 (30 F.R. 15296). The basis for this amendment is fully discussed in that notice and in previous amendments cited therein.

All of the comments received in response to Notice 65-38 concurred in the adpotion of this amendment.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all matter presented.

In consideration of the foregoing, and for the reasons set forth in Notice 65-38, Parts 91, 121,* and 129* of the Federal Aviation Regulations are amended, effective July 1, 1966.

This amendment is made under the authority of sections 307, 313(a), 601, 604 and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1421, 1424, and 1425).

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* Parts 121 and 129 are published separately.

Amendment 91–29

Civil Aircraft of U.S. Registry Operated Outside of the United States

Adopted: June 7, 1966 Effective: September 19, 1966

(Published in 31 F.R. 8354, June 15, 1966)

The purpose of these amendments is to prescribe rules applicable to civil aircraft of U.S. registry operated outside of the United States. The amendments were proposed in Notice 65–19 and published in the Federal Register on August 13, 1965 (30 F.R. 10116).

Two of the three public comments received on the Notice concurred with it. The third comment, made by a pilots organization, offered no serious objection but made several observations on difficulties that might be encountered by general aviation pilots while flying outside the United States. First, it was stated, these pilots might not be in a location where they could obtain mechanical help or parts promptly following Agency issuance of an Airworthiness Directive, or might not even be aware of its issuance. It must be observed that § 39.3 of Part 39 (Airworthiness Directives), which prohibits operation of a product to which an airworthiness directive applies, except in accordance with the requirements of that airworthiness directive, is not limited to operations in the United States, and compliance with this provision is necessary to retain the validity of an airworthiness certificate. In view of this provision, it is the aircraft operator's responsibility to observe these directives, that can be brought to the attention of persons affected in no more feasible manner than the customary publication. To emphasize this responsibility of the aircraft operator, the accompanying amendments, by an addition to § 91.163, call attention to the obligation to comply with Part 39. Second, this comment asserted that regulations in some foreign countries are difficult to obtain or, in a few cases, unrealistic for small aircraft, and as a result an operator might unwittingly violate some unknown or unrealistic regulation, until the International Civil Aviation Organization (ICAO) adopts uniform standards for general aviation aircraft. However, as stated in the Notice, this country is obligated under the Chicago Convention to require the operators of civil aircraft of United States registry in a foreign country to comply with the rules and regulations relating to flight and maneuver of aircraft there in force. Also, compliance with Annex 2 to the Chicago Convention (Rules of the Air) will in most cases meet the requirements of foreign countries in this respect.

One of the comments concurring with the proposal pointed out that Parts 40, 41, and 42 of the Civil Air Regulations provided that, unless otherwise specified in the air carrier rules or the operations specifications of an air carrier, Parts 43 and 60 of the CARs, Annex 2 (Rules of the Air) to the Chicago Convention, or air traffic rules of the foreign government and local airport rules, would be complied with, as applicable, except where any rule of the operating Part (formerly Parts 40, 41, and 42—now Part 121 of the FARs) was more restrictive and could be followed without violating the Annex 2 or foreign rules. It was requested that these provisions, formerly in Parts 40, 41, and 42, be incorporated in Part 121 at the same time that the proposed changes are made in Part 91. As stated in the preamble to the amendment adding Part 121 to the Federal Aviation Regulations, effective April 1, 1965 (29 F.R. 19186, December 31, 1964), § 121.11 was rewritten to delete the reference to Part 91 and the requirement that certain certificate holders must comply with the ICAO rules when over the high seas. The deletion was made since the provisions simply repeated requirements now already contained in Part 91 that are applicable to all aircraft, including air carrier aircraft. Section 91.1, as now changed, continues to apply to air carrier aircraft, and to adopt the suggestion made in the comment would be to reintroduce into Part 121 matter that was intentionally deleted from that Part.

As stated in the Notice, these amendments complete the process of making the general operating and maintenance rules of Subparts A (except §§ 91.15(b), 91.17, 91.38, and 91.43) and C of Part 91 applicable to civil aircraft of U.S. registry operated outside of, as well as within, the United States. At the same time, these amendments implement compliance with the obligations of the United States under section 1102 of the Federal Aviation Act of 1958 and the Convention on International Civil Aviation (Chicago Convention).

Section 1102 of the Federal Aviation Act of 1958 requires the Administrator to exercise his powers and perform his duties under the Act, "consistently with any obligation assumed by the United States in any treaty, convention, or agreement that may be in force between the United States and any foreign country or foreign countries, and [to] take into consideration any applicable laws and requirements of foreign countries * * *."

As a party to the Chicago Convention, the United States has assumed certain obligations with regard to the airworthiness and operations of civil aircraft of U.S. registry outside of the United States. One purpose of the rules made by these amendments is to assure that the operation of civil aircraft of U.S. registry outside of the United States is in conformity with this country's obligations under the Chicago Convention.

Under Article 12 of the Convention the United States is obligated to adopt measures to insure that "every aircraft carrying its nationality mark, wherever such aircraft may be, shall comply with the rules and regulations relating to the flight and maneuver of aircraft there in force," as well as to undertake "to insure the prosecution of all persons violating the regulations applicable." Article 12 also provides that the rules of flight over the high seas shall be those established under the Convention. Section 91.1(b) of the Federal Aviation Regulations (formerly § 60.1a of the Civil Air Regulations) presently requires aircraft of U.S. registry to comply with these rules (set forth in ICAO Annex 2). These amendments provide a regulatory requirement for these aircraft to comply with local flight rules when operating in foreign countries.

To accomplish these purposes, the following amendments are made:

1. *Aircraft operation within foreign countries.* Section 91.1 is revised to require each person operating a civil aircraft of U.S. registry in a foreign country to comply with the rules and regulations relating to the flight and maneuver of aircraft there in force. Section 91.1(b) (formerly § 60.1a of the Civil Air Regulations) has required each person operating an aircraft of U.S. registry in air commerce over the high seas to comply with Annex 2 (Rules of the Air) to the Chicago Convention. Since this country's obligation in this respect pertains only to civil aircraft of U.S. registry over the high seas, this requirement is revised to make it conform with the Convention.

2. *Airworthiness.* Sections 91.27 through 91.31 of Part 91 prescribe rules designed to assure that civil aircraft of U.S. registry are properly certificated and in an airworthy condition. Section 91.163(b) of Subpart C further is intended to assure the continued airworthiness of these aircraft by requiring maintenance, preventive maintenance, and alterations to be performed in accordance with that subpart and other applicable rules, including Part 43 of the Federal Aviation Regulations. These Part 91 rules in terms have been applicable only to civil aircraft of U.S. registry operating within the United States. However, it should be noted that under § 21.181(a) of the Federal Aviation Regulations the maintenance, preventive maintenance, and alteration requirements of Parts 91 and 43 must be complied with if an airworthiness certificate is to remain effective. To meet this country's responsibility under Articles 29 and 31 of the Chicago Convention, and to assure the continued airworthiness of civil aircraft of U.S. registry operated in foreign countries, §§ 91.27 through 91.31 and Subpart C of Part 91 are now made applicable to these aircraft operated outside of the U.S.

3. *Other general operating rules.* Of the other rules of Subpart A of Part 91, four already have been applicable to operation of aircraft of U.S. registry outside of the United States. All of the rules of this subpart (other than §§ 91.15(b), 91.17, 91.38, and 91.43) are now being made applicable to operations outside of the United States, so as to make the same standards govern there as within the United States. However, in conformance with the obligations under the Chicago Convention, all of these rules apply only to civil aircraft of U.S. registry. Excepted from applicability are § 91.15(b) that requires parachute jumps to be made in accordance with Part 105 of the Federal Aviation Regulations which in turn is applicable only within the United States, § 91.17 that prohibits towing anything by aircraft without a waiver issued by the Administrator, and § 91.43 and § 91.38 that respectively provide special rules for foreign civil aircraft within the United States and certain airplanes operated in Alaska.

Two provisions of the general operating rules of Subpart A are made applicable only within the United States because of reference to waivers issued, or operating limitations imposed by the Administrator. Section 91.17 requires a certificate of waiver issued by the Administrator for towing anything with a civil aircraft. Section 91.39 concerns limitations on operation of restricted category civil aircraft. Paragraph (d) of that section prohibits operation over densely populated areas, in congested airways, and near busy airports where passenger transport operations are conducted, except in accordance with the terms and conditions of a certificate of waiver or special operating limitations issued by the Administrator. These waiver and special limitations provisions should apply only within the United States. Operations under these sections within foreign countries would be subject, of course, to any corresponding applicable rules there in force.

Paragraph (e) of § 91.39 (Restricted category civil aircraft; operating limitations) previously has referred to an application for a certificate of waiver under "this section." This provision, recodified from § 8.31-1 of Civil Aeronautics Manual 8, originally referred to waivers from the prohibitions in § 8.31 of Part 8 of the Civil Air Regulations, recodified as paragraph (c) of § 91.39 and subsequently amended and redesignated paragraph (d). This reference in paragraph (e) is changed to accurately relate to paragraph (d) and not to paragraphs (a), (b), and (c) of the section (under which waivers may not be sought).

4. *Airman competency.* Section 61.3(a) prohibits a person from acting within the United States as pilot in command or in any other capacity as required pilot flight crewmember of a civil aircraft of U.S. registry unless he has in his personal possession a current pilot certificate issued to him under that Part. To meet this country's responsibility under Article 32 the phrase "within the United States" is deleted from the rule and thus the airman certificate requirements of Part 61 are made applicable to airmen operating civil aircraft of U.S. registry outside of the U.S. At the same time, provision is made to allow the use of a current pilot certificate issued by the foreign country within which the aircraft is operated.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant material presented.

In consideration of the foregoing, Parts 61 and 91 of the Federal Aviation Regulations are amended effective September 19, 1966.

These amendments are made under the authority of sections 307(c), 313(a), 601-610, and 1102 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1421-1430, 1502); and Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat. 1180).

Amendment 91-30

Cross Reference Corrections in FAR Parts 21, 33, 37, 43, 61, 63, 91, 127, 133, 141, 145, 149, and 183

Adopted: June 28, 1966 **Effective: July 6, 1966**

(Published in 31 F.R. 9211, July 6, 1966)

These amendments update certain cross references in the Federal Aviation Regulations and make other miscellaneous corrections.

At the time of the recodification, it was necessary to include in the Federal Aviation Regulations cross references to the Civil Air Regulations or Special Civil Air Regulations where the referenced provision had not yet been recodified. These amendments update all these cross references in instances where no substantive change is involved. In some instances, the cross references as updated herein have been anticipated in compilations and reprints of the respective Parts of the regulations.

For convenience, a table is utilized to state the changes that can be accomplished by a mere substitution of the proper cross reference.

The original publication of section 91.101(a) referred to the "Bureau of Commerce" instead of the "Bureau of Customs". This error is being corrected. The introductory sentence of subparagraph (b)(5) of Appendix B of Part 141 is corrected by the addition of a line of text that was inadvertently omitted in the recodification.

Since this amendment does not involve any substantive change and does not impose a burden on any person, notice and public procedure thereon are unnecessary, and the amendment may be made effective immediately.

In consideration of the foregoing, Chapter I of Title 14 is amended, effective July 6, 1966.

This amendment is made under the authority of section 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a)).

Amendment 91–31

Altimeter System Requirements—Extension of Compliance Time

Adopted: July 15, 1966 **Effective: July 15, 1966**

(Published in 31 F.R. 9793; July 20, 1966)

The purpose of this amendment is to provide an additional period of one year for operators to comply with the requirements of § 91.170 of Part 91 of the Federal Aviation Regulations prescribing periodic inspections and tests of altimeter systems installed in airplanes operating under IFR conditions. In addition, it provides that the first required test and inspection need not be made, in the case of airplanes under annual inspection, until the first annual inspection after July 31, 1967.

As issued on June 21, 1965, effective July 29, 1965, this section prohibits any person from operating an airplane in controlled airspace under IFR unless, within the preceding 24 calendar months, each static pressure system and each altimeter instrument has been tested and inspected and found to comply with Appendix E of Part 43. The altimeter must be tested by an appropriately rated repair station and compliance with this section is required by August 1, 1966. The Agency anticipated that the period before August 1, 1966, would provide ample time for operators to prepare for and complete the required inspections and tests. However, it appears that this expectation was too optimistic.

Requests for extension of the compliance time for § 91.170 have been received from Aerospace Industries Association, Airline Owners and Pilots Association, National Aviation Trades Association, National Business Aircraft Association and National Pilots Association. From the information furnished in these requests and after further consideration by the Agency, it appears that numerous questions have arisen concerning the required tests and inspections. In this connection, the supply of new altimeters that will meet the test requirements of § 91.170 is apparently quite limited. With approximately 30,000 to 40,000 aircraft involved, it will not be possible for all persons needing new altimeters to purchase them by August 1, 1966. Moreover, it appears that a number of existing repair stations are not yet equipped or ready to perform the required altimeter tests. This situation is delaying compliance with the test requirements, since some persons have not found a facility where they can have the altimeter test performed.

In view of the foregoing, the Agency has concluded that the granting of a resonable additional time period in which to establish compliance with the requirements of § 91.170 is appropriate and this amendment extends the beginning date for compliance to August 1, 1967, and the beginning date for those aircraft under annual inspection to the first annual inspection after July 31, 1967.

In view of the imminence of the compliance date of the subject amendment and because the amendment is an extension of compliance time for an existing requirement, I find that notice and public procedure hereon are impracticable and that good cause exists for making this amendment effective on less than 30 days' notice.

In consideration of the foregoing, paragraph (b) of § 91.170 is amended, effective July 15, 1966.

This amendment is made under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421 and 1423).

Amendment 91-32

Positive Control Areas

Adopted: July 29, 1966 **Effective: September 4, 1966**

(Published in 31 F.R. 10517, August 5, 1966)

The purpose of this amendment is to alter the regulations governing the operations of aircraft within a positive control area.

Section 91.97 of Part 91 requires, in part, that aircraft operated in a positive control area shall be equipped with a coded radar beacon transponder. In order to accommodate those aircraft having a transponder failure in flight, ATC is permitted to immediately authorize, consistent with the capability of the air traffic control system at the time, continued flight within or entry into a positive control area. However, in cases of transponder failure which do not meet the condition for immediate ATC approval, permission to enter a positive control area with an inoperative transponder must be requested at least four days before the proposed operation, in writing, from the ATC center having jurisdiction over the positive control area concerned.

It may not be expedient in many cases of transponder failure, whether in-flight or otherwise, for a flight to immediately reroute to a location at which repair facilities are available. An unnecessary economic penalty, through increased fuel consumption, could result if flight below a positive control area were required as a result of transponder failure which did not meet the condition for an immediate ATC authorization to remain in or enter a positive control area.

Experience indicates that it is no longer necessary to limit ATC to accommodating aircraft for the duration of the flight in which the failure occurred. The scope of such authority may be broadened to provide also for reentry of a positive control area, as necessary, including stops at intermediate locations made in completion of a planned flight.

It should be emphasized, however, that this amendment does not permit flights of indefinite duration with an inoperative transponder but simply provides a less cumbersome means of permitting the completion of a planned flight and allowing the aircraft to proceed to a repair station.

This amendment clarifies the conditions under which a flight may be continued with an inoperative transponder, and, additionally, includes several editorial changes. These actions do not increase the burden upon any person, and do not adversely affect safety. Therefore, the Administrator finds that notice and public procedure hereon are unnecessary.

In consideration of the foregoing, section 91.97, Part 91 of the Federal Aviation Regulations, is hereby amended, effective September 4, 1966.

This amendment is made under the authority of Sections 307 and 313 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354).

Amendment 91-33

Authorization for Ferry Flight With One Engine Inoperative

Adopted: October 14, 1966 **Effective: November 19, 1966**

(Published in 31 F.R. 13525, October 20, 1966)

The purpose of these amendments to § 91.45 of the Federal Aviation Regulations is to provide rules for ferry flight of a turbine engine powered airplane equipped with either three or four engines, with one engine inoperative, to a base for repair of that engine. These amendments also change § 91.45 to require the use of temperature accountability for the takeoff field length in flight tests of four-engine reciprocating engine powered airplanes under that section; to require the addition of certain data to the Airplane Flight Manual, and certain limitations to the operator's manual; and to make the rules of the section applicable to the same kind of ferry flights by commercial operators of large aircraft, in addition to air carriers.

These amendments (except as now changed) were proposed in Notice No. 66-10 and published in the Federal Register on April 5, 1966, (31 F.R. 5381). Public comment was received from five sources. One comment expressed opposition to all ferry flights with one engine inoperative. However, the safety record of these flights supports the extension of the rules accomplished by the amendments. The other comments did not oppose the objectives of the proposals as such, but offered a number of suggestions some of which have been adopted, others not.

Several comments dealt with the proposed or existing general criteria of § 91.45(a). Thus, some concern was expressed as to the inclusion, in the operator's manual, of limitations that the operating weight on any ferry flight must be the minimum necessary therefor, and takeoffs must be made from dry runways. Responsive to these comments, these amendments provide in § 91.45(a)(3)(i) and (ii) that the weight may include the necessary reserve fuel load, and that takeoffs may be made from wet runways after approval of an operator's showing of actual takeoff techniques with full controllability from wet runways. One comment was adverse to the provision of § 91.45(a)(4)(ii), already contained in the regulations, that no person may take off an airplane if weather conditions at the takeoff or destination airport are less than those required for VFR flight, and it suggested "circling minimums" of 500 feet and one or two miles visibility. However, the Agency believes that VFR conditions are essential for safe ferry operations, especially in the event of an additional engine failure at takeoff and destination landing areas, in order to allow the crewmembers to concentrate on the emergency and to minimize the necessity of holding or making an instrument approach.

Several comments dealt with the criteria for flight tests. One comment felt that the speed of not less than $1.3V_{S_1}$, already contained in § 91.45(b)(1), is too high. However, the experience with this speed indicates it is satisfactory for the purpose and its use should be continued. Several comments objected to the proposed requirement, for both reciprocating and turbine engine powered airplanes, of attainment of a speed not less than the two-engine inoperative minimum control speed before the airplane reaches 400 feet above the surface after takeoff. This requirement has been dropped from the amendments, since upon reconsideration the Agency agrees with the observations made by these comments that the new requirement is not necessary in view of past satisfactory operations without it, and that the minimum cleanup altitude is 400 feet under the airworthiness standards for takeoff path in § 25.111(c)(2) and (4) of Part 25 of the Federal Aviation Regulations.

The preamble of Notice 66-10 referred to the use of "full" temperature accountability for the takeoff field length in flight tests for reciprocating engine powered airplanes, but the word "full" was not used in the proposed regulations themselves (§ 91.45(b)(5)). The operating factors for the weight and takeoff distance may be as little as one-half of the full accountability values, under § 25.61, the provision under which temperature accountability is to be computed. Accordingly, the rule as written governs in this respect, and not the language employed in the preamble of the Notice.

Two comments suggested that the minimum final climb gradient in the test flight for a three-engine turbine engine powered airplane with two engines inoperative should be 1.0 percent at the end of the takeoff rather than 1.2 percent as proposed for § 91.45(c)(4)(i). The Agency does not concur with this suggestion. Section 25.121(c), the provision to which reference is made for maximum weight for the performance, requires a 1.2 percent gradient for a two-engine airplane for one engine inoperative, and it is proper to require the same gradient for the similar situation of a three-engine airplane with two engines inoperative.

Two other suggestions made by comments with respect to criteria for flight tests have been adopted. Thus, § 91.45(c)(2) has been clarified as to its inclusion of V_2 speed with respect to takeoff field length; and the word "original" has been dropped from the reference to type certification in § 91.45(c)(1) and (2)(iii) as issued, with respect to the power selection, since use of the word might be confusing when applied to airplanes recertified for engine thrust increases.

Some concern was expressed that the proposals made in Notice 66-10 would require additional flight tests for aircraft for which approved Airplane Flight Manual data for one engine-out ferry flights already had been obtained. Pending these amendments of the rules to provide for the distinction between reciprocating and turbine engine powered airplanes, the Agency has approved the use of jet ferry data contained in Airplane Flight Manuals based upon flight tests determined to meet the existing requirements of § 91.45(a)(1) for three- or four-engine turbine engine powered airplanes. Therefore, it was also determined that this data might be used for compliance with § 91.45(a)(2). Also, the criterion (temperature accountability) added to the regulatory requirements for flight tests in the case of reciprocating engine powered airplanes, and to the criteria used for approval in the case of turbine engine powered airplanes, is a comparatively minor change. In view of these circumstances, these amendments include a provision in § 91.45(a)(1) that each operator who before the effective date of the amendments has shown that a model of airplane with one engine inoperative is satisfactory for safe flight by a test flight conducted in accordance with performance data contained in the applicable Airplane Flight Manual under § 91.45(a)(2) need not repeat that test flight.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

In consideration of the foregoing, and for the reasons stated in Notice No. 66-10, § 91.45 of Part 91 of the Federal Aviation Regulations is amended effective November 19, 1966.

These amendments are made under the authority of sections 307, 313(a), 603, and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1424, 1427).

Amendment 91–34

Authorization for Ferry Flight with One Engine Inoperative—Extension of Time for Compliance with Certain Provisions

Adopted: November 18, 1966 Effective: November 18, 1966

(Published in 31 F.R. 14928, November 26, 1966)

The purpose of these amendments to § 91.45 of the Federal Aviation Regulations is to provide an additional 90-day period for air carriers and commercial operators of large aircraft to comply with two provisions of the rules recently issued concerning ferry flight with one engine inoperative to a base for repair of that engine.

As issued October 14, 1966, effective November 19, 1966, § 91.45 provides new rules under which this kind of ferry flight can be conducted if certain requirements are met. Among other requirements, the approved Airplane Flight Manual must contain performance data (and the flight conducted in accordance therewith) on runway length for takeoff including temperature accountability (§ 91.45(a)(2)(iv)). In addition, the rule would prohibit takeoffs from wet runways unless takeoffs with full controllability from wet runways have been approved and included in the Airplane Flight Manual. Both of these requirements are new.

On November 7, 1966, Air Transport Association petitioned for a 90-day extension of the effective date of these two provisions, to permit development, approval, and issuance of temperature accountability data (particularly for reciprocating engine powered airplanes) and to allow testing, development, and approval of flight manual data for takeoffs from wet runways.

The "temperature accountability" requirement involves determination of temperature correction data to be applied to the performance data in the approved Airplane Flight Manual for standard temperature conditions. The required data is not readily available; therefore additional time is needed to obtain the data, make the manual changes, and obtain FAA approval.

Only one model airplane actually has been demonstrated on wet runway for the required capability. Conducting these tests is difficult, and more time will be needed to conduct them, develop flight manual data, and obtain approval.

In view of these circumstances, the Agency has concluded that granting a reasonable additional time period is appropriate to allow certificate holders to comply with these two provisions. These amendments therefore extend the compliance date for meeting these new requirements.

Since these amendments grant relief by extending the date for compliance with requirements of the Federal Aviation Regulations that cannot feasibly be complied with in less than 90 days, I find that notice and public procedure hereon are not necessary, and these amendments may be made effective immediately.

In consideration of the foregoing, § 91.45(a)(2)(iv) and (3)(ii) of the Federal Aviation Regulations are amended, effective November 18, 1966.

These amendments are made under the authority of section 307, 313(a), 603, and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1424, 1427).

Amendment 91–35

Portable Electronic Devices

Adopted: December 1, 1966 **Effective: March 6, 1967**

(Published in 31 F.R. 15317, December 7, 1966)

The purpose of this amendment is to extend the scope of § 91.19 to prohibit the use of additional portable electronic devices aboard a U.S. civil aircraft.

A notice of proposed rule making regarding this action was circulated as notice 66–8 and published in the Federal Register on March 30, 1966 (31 F.R. 5134). Interested persons were thereby afforded an opportunity to participate in the rule making through the submission of comments to the proposal and due consideration was given to all relevant matter presented.

In response to the notice the Agency received several comments from interested persons, including associations representing general aviation, air carriers, and airline pilots. Some comments favored the proposal while others contained suggestions that have been incorporated in the rule as adopted herein. Some comments, however, indicated a misunderstanding of the rule as proposed in the notice. Therefore, where appropriate, clarifications have been made to the language of the rule.

The Agency wishes to emphasize that the rule is not intended to prohibit the use of those electronic devices that are incapable of creating interference with the navigation and communication system of the aircraft on which they are used. In the case of general aviation aircraft, portable radio receivers used as "back up" receivers, or other specialized devices, such as those used for flight testing or metallurgical exploration, may be operated aboard an aircraft under IFR when the operator of the aircraft or the pilot in command has determined that the device is incapable of causing interference with the navigation or communications system of the aircraft concerned. In the case of aircraft operated by air carriers or commercial operators the rule is primarily directed to those electronic devices used by the passengers and applies to VFR as well as IFR operations. Since certain known electronic items used by the passengers do not cause interference with the aircraft they have been expressly excepted from the rule. However, in order to provide for other devices that may be used by a passenger for physical or other reasons the rule as adopted permits the use of such a device if it has been determined by the air carrier or commercial operator, aboard whose aircraft the device is to be used, that the particular device is incapable of causing interference with the navigation and communication system of the aircraft concerned.

One comment recommended that the term "portable recorders" which are excepted in the proposal was too broad since it would encompass recorders whose input or output might include audio, radio, or video frequencies. The Agency agrees and the rule as adopted herein is limited to "portable voice recorders". Another comment pointed out that the term "IFR or an IFR flight plan" is redundant. This term was used to make it clear, as stated in the notice, that the rule applied to general aviation aircraft regardless of whether the IFR equipment aboard the aircraft was being used for the navigation of the aircraft. However, it appears that the term "IFR" is adequate to cover the situations intended by the rule and it is used in the rule as adopted.

Comments regarding the method of determining whether a particular electronic device could be used were also received. One comment in objection to the proposal stated, among other things, that an authorization to use an electronic device not specifically excepted from the rule would subject general aviation operators to a considerable amount of red tape. The comment further stated that the proposed rule would impose undue restrictions and hardship on the use in general aviation aircraft of a large variety of portable equipment without any showing on the part of the Agency that harmful interference would result from the use of those devices. Another interested person urged that the determination of whether a particular device will not cause interference should be made by the FAA because most air carriers, commercial operators and other operators do not have test equipment capable of making the necessary determinations.

The determination of the effect of a particular device on the navigation and communication system of the aircraft on which it is to be carried can be made by the operator of the aircraft without red tape or burdensome tests and procedures. In many cases, the determination can be based upon operational tests conducted by the operator without sophisticated testing equipment. If this is not possible, the operator must obtain services of a person or facility that has the capability of making the determination for the particular electronic device and aircraft concerned. To require an FAA conducted or verified test of every conceivable portable electronic device, as an alternate solution to a determination by the operator, would place an excessive and unnecessary burden upon the Agency. Therefore, the rule as adopted herein is drafted to require the air carrier or commercial operator to determine whether a particular portable electronic device will cause interference when operated aboard its aircraft. This determination shall be made by personnel specifically designated by the air carrier or commercial operator for this purpose, and may, where appropriate, include the pilot in command. For other aircraft, the language of the rule expressly permits the determination to be made by the pilot in command or other operator of the aircraft. Thus, in the case of rental aircraft, the determination could be made by the pilot or the fixed base operator.

One comment questioned the justification of charging the pilot in command with the responsibility of not allowing a passenger to use an unauthorized electronic device. The comment pointed out that under the rules requiring the cabin door on air carrier aircraft to be closed and locked and a pilot to remain at his station, the pilot in command should not be charged with that responsibility unless he is apprised of the use of the device by the passenger. The proposal did not intend to place such responsibility upon the pilot in command. The language of paragraph (a) which makes it a violation for the pilot in command to allow the operation of certain portable electronic devices aboard an aircraft, has appeared in section 91.19 and its predecessor regulation, SR-446, for many years. During this time it has not been interpreted or administered as suggested in the comment. The responsibility of the pilot for the actions of the passenger under the FM radio rule only applies when the pilot has knowledge of the passenger's use of the radio. As adopted, the rule will continue to be applied in this manner and there appears to be no need for amendment of the rule.

In consideration of the foregoing and for the reasons previously stated in the Notice 66-8, § 91.19 of the Federal Aviation Regulations is amended effective March 6, 1967.

(Secs. 313(a), 601, Federal Aviation Act of 1958; 49 U.S.C. 1354 and 1421)

Amendment 91-36

Flight Maneuvers: Airline Transport Pilot Certificates and Associated Ratings; Proficiency Checks; Training

Adopted: January 3, 1967 **Effective: April 15, 1967**

(Published in 32 F.R. 260, January 11, 1967)

The purpose of this amendment is to revise and update the flight maneuvers required by Part 61 of the Federal Aviation Regulations for airline transport pilot certificates and associated ratings and by Part 121 of the Federal Aviation Regulations for training and proficiency checks.

This amendment was originally proposed as a Notice of Proposed Rule Making issued as Notice 66-6 and published in the Federal Register on March 19, 1966 (31 F.R. 4735).

Almost all of the comments received were in general agreement with the Agency's stated purpose to revise and update the flight maneuvers required of applicants for airline transport pilot certificates and associated ratings and for proficiency flight checks under Federal Aviation Regulation Part 121. There were, however, numerous specific comments, many of which objected to particular items contained in Notice 66-6. The more significant of the comments received and the Agency's disposition thereof, are discussed below.

Retesting after failure. Probably the most controversial proposal contained in Notice 66-6 was the deletion of the provision in § 61.27(d) authorizing an applicant who has failed any flight maneuvers during an airline transport pilot (ATR) flight test to repeat only the failed maneuvers. The comments on this proposal ranged from wholehearted endorsement to objections that appear to have been based somewhat on a misunderstanding of the intent of the proposed change. As indicated in the notice, the Agency's primary intent was to prevent an applicant from obtaining an airline transport pilot certificate or associated rating by passing the flight test on a piecemeal basis. The Agency did not propose to automatically require retesting of all maneuvers, upon failure of any one maneuver. Rather, the Agency proposed to give the person conducting the test the authority to require retesting on maneuvers, in addition to the maneuver failed, where, in his judgment, such retesting is necessary to determine the competency of the applicant for an ATR or associated rating. For example, if an applicant failed only one maneuver while performing all other maneuvers with a high degree of skill, the Agency would not normally expect the inspector to require retesting of more than the failed maneuver. However, where an applicant failed several maneuvers, it would be reasonable for the inspector to require the applicant to repeat more than the failed maneuvers before the inspector would be willing to affirm that the applicant has demonstrated the overall high level of competence and judgment required of an applicant for an ATR or associated rating. The same reasoning would apply in the case of a Part 121 proficiency check.

Crew complement. Several comments were addressed to the Agency's proposal to prohibit the conduct of a proficiency flight check unless the pilot seated at the controls other than the pilot being checked is fully qualified to act as pilot in command of the airplane. Some of the comments were concerned that this proposal would prohibit the type of situation where the check airman would occupy the jump seat while both pilots at the controls were being checked, one as pilot in command, the other as second in command. The Agency agrees that the proposed limitation would have the effect of prohibiting this method of checking. Nevertheless, the Agency believes that during Part 121 proficiency checks and flight tests for ATR and associated ratings, the pilot seated at the controls, other than the pilot being checked, should be fully qualified to act as pilot in command of the airplane. This prohibition is therefore being adopted. While the notice did not propose to extend this prohibition to ATR and type rating flight tests, their inclusion, as a practical matter, should not impose any substantial additional burden since, under present § 91.21(b), for simulated instrument flight an "appropriately rated pilot" must occupy the other control seat as safety pilot. Section 91.21(b) has been interpreted to require a private pilot certificate with an airplane category rating and multiengine class rating for a small multiengine land plane, and a type rating for a large airplane or for a turbojet powered airplane (large or small). Therefore, the practical effect of this additional limitation is merely to require for all of the maneuvers a safety pilot, as qualified, as is now required for the simulated instrument maneuvers. In view of the relationship to § 91.21, this provision is included as a new paragraph in that section rather than as a new section. The authorization, proposed in the notice, to permit a pilot who has completed an air carrier training program and who is fully qualified to act as second in command to be seated at the control during certain maneuvers is not being adopted.

General organization. Several comments objected to what they felt was an unwarranted emphasis on the Part 121 significance of the material discussed in Notice 66-6. Part of these objections may have resulted from the organization of the proposed maneuvers in the notice. As adopted in this amendment, Part 61 of the Federal Aviation Regulations will contain an Appendix A that sets forth the maneuvers required for an airline transport pilot certificate and associated ratings. With the exception of the partial waiver authority (which is discretionary with the person conducting the flight test) contained in § 61.147(c), the flight test requirements are identical without regard to whether the applicant is at that time employed by a Part 121 certificate holder.

In place of the three phase breakdown proposed in Notice 66-6, this amendment organizes the required maneuvers into a chronological preflight, takeoff, enroute, landing, sequence. In accomplishing this reorganization, numerous nonsubstantive changes from the notice have been made. Also, as was indicated in Notice 66-6, this amendment revises the training program requirements of Part 121 to reflect the changes in the required maneuvers. As a result of these changes, it has been possible to consolidate the pilot training requirements formerly contained in §§ 121.418, 121.419 and 121.420 into two sections. Similarly, the proficiency check requirements formerly contained in §§ 121.441 and 121.449 have been consolidated into § 121.441.

Notice 66-6 stated that the Agency proposed to spell out in detail the minimum standards and procedures for each maneuver. As an example, with respect to "instrument approach procedures" the Agency proposed to spell out the: (1) kind of approach required; (2) minimum number of approaches required; (3) manner in which the maneuver is to be demonstrated; and (4) variations (such as simulated powerplant failure) that must be included in the maneuver.

In this regard, the NPRM sought to spell out specific performance limitations and procedural requirements for each required maneuver. For example, with respect to instrument approach and missed approach procedures the notice stated that this maneuver was to include the following:

"(1) Determination of applicable weather minimums, required radio and visual aids, runway conditions and proper planning.

(2) Proper airplane configuration, airspeed and altitude over the final approach facility.

(3) Proper airspeed, course, and altitude control from final approach facility to touchdown.

(4) Proper control of emergency situations encountered during the approach.

(5) When the applicant elects to use flight director or autocoupler, or both, one approach must be made in the normal configuration, without powerplant failure or other emergency simulation, to 100 feet above the ground or water."

Similar details were proposed with respect to most maneuvers. The Agency now believes that while it is important to prescribe specifically the kind and number of required maneuvers and in some cases a description of the maneuver, such detail is not appropriate in all cases. Rather, the Agency believes that it is preferable to include a general requirement that each required maneuver must be performed in accordance with any procedures and limitations, in the applicable approved airplane flight manual, approved check lists, (and other approved material applicable to the airplane type) and also with approved enroute, instrument approach, missed approach, and ATC procedures. In the case of proficiency checks under Part 121, compliance with any applicable provisions of the certificate holder's operations manual will also be considered by the person conducting the check.

By including this general requirement, in place of the detail proposed in the Notice, the size of the Appendices to be added to Parts 61 and 121 is substantially reduced and the problems, inherent in trying to cover all possible airplane types and potential situations that could be met, are eliminated. Also, as new airplanes are introduced into service, any new and different procedures or limitations contained in applicable approved material are automatically applicable to the required flight maneuvers without the necessity of specific amendments to the Appendices.

Recognition of approved training programs under Part 121. Comments from both pilot and airline groups stated that the Agency should give further recognition to the training programs established under Part 121 since such programs are approved by the Agency and are under the constant review and surveillance of the Agency. Notice 66-6 proposed to authorize the person giving a type rating or proficiency check to waive the maneuvers required in proposed Phase B (except takeoffs and landings) when the pilot being checked is employed as pilot in command or as second in command and has successfully completed an approved training course under Part 121. The Agency agrees that additional recognition can and should be given to the effectiveness of the approved training programs of air carriers and commercial operators operating under FAR Part 121. This amendment therefore authorizes the person conducting a practical examination for an

ATR, associated class or type rating, or a proficiency check under Part 121, to waive certain specified maneuvers if the person being tested is at that time employed by a Part 121 certificate holder as a pilot and has successfully completed the certificate holder's approved training program for the airplane type involved. In addition to those maneuvers proposed to be covered by the waiver authority in the Notice, this amendment authorizes waiver of rejected takeoffs, holding, and specific flight characteristics. However, in this amendment, as was proposed in the notice, the Administrator reserves the right to require certain specific or all maneuvers to be performed.

Use of airplane simulators. Several comments indicated that the Agency should give increased recognition to the use of approved airplane simulators in the conduct of checks required of applicants for ATR's, and associated type ratings, and for proficiency checks under FAR Part 121. The Agency agrees that existing airplane simulators and those that are expected to be available in the near future are adequate for checking many of the required flight maneuvers. Under the present Part 121 requirements and those proposed in Notice 66-6, approved airplane simulators are authorized for use in pilot proficiency checks (after the initial checks). In this amendment the Agency has endeavored to give recognition to the advanced types of simulators now being developed, such that additional maneuvers, not presently authorized to be performed in a simulator (e.g. circling approaches), may be performed in a simulator if the Administrator finds that the applicant's competency can be determined as well in the simulator as in the airplane.

Miscellaneous changes. The Agency agrees with the several commentators who stated that the oral examination portion of the ATR practical examination should remain valid for longer than the 30 days proposed in the Notice. While several comments proposed a 90-day period, the Agency believes that 60 days is a reasonable and adequate period to allow an applicant to complete the flight portion of the practical examination.

Several comments indicated that the proposed requirement for at least three full stop landings during an ATR or type rating check would be excessive. The comments indicated that for many existing jet airplanes this requirement could result in excessive delays because of the time needed between the landing and a subsequent takeoff, to allow for the effects of brake heat energy and other pertinent factors. In recognition of the validity of these comments, this amendment, while continuing to require three actual landings during an ATR or type rating check, requires that only one landing need be to a full stop. Similarly, for initial second in command proficiency checks, while two actual landings are required only one need be to a full stop.

Several comments objected to the inclusion of "balked landing" as a required maneuver. The Agency agrees that the balked landing, as such, is actually a type certification maneuver and in fact intended that a typical "rejected landing" be performed in ATR, type rating, and proficiency checks. This amendment therefore requires a "rejected landing".

Military competency. One comment recommended that Part 61 be amended to award military pilots with multiengine experience, ATR's without type ratings, if they meet the criteria of the applicable provisions of Subpart E of Part 61. This comment also suggested that consideration be given to awarding type ratings based on military check rides alone. Since this proposal is beyond the scope of Notice 66-6, it cannot be considered for inclusion in this amendment and its merits will not be specifically discussed herein. However, the comment will be considered in future relevant Part 61 rule-making actions.

Notice 66-25. On July 14, 1966, the Agency issued Notice 66-25 proposing additional operational, training, and minimum experience requirements for pilots of turbojet engine powered airplanes. The comments received generally opposed the need for a regulation to require the specific proposals (i.e. 100 hours as pilot in command of an airplane type before the second in command could take off, approach, or land; 35 landings in an airplane type before a pilot could serve as pilot in command) contained in the Notice.

The Agency is now satisfied that, in view of the overall revision in this amendment of the flight maneuvers required for ATR, associated type ratings, and proficiency checks under Part 121, and changes that have been adopted in operations manuals and training programs for specific airplane types, general rule-making action as proposed in Notice 66-25 is unnecessary. Therefore, Notice 66-25 is being withdrawn. Withdrawal of a Notice of Proposed Rule Making constitutes only such action, and does not preclude the Agency from issuing another notice in the future or commit the Agency to any course of action in the future.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all matter presented.

In consideration of the foregoing, Notice 66-25 published in the Federal Register on July 21, 1966 (31 F.R. 9876) is hereby withdrawn and Parts 61,* 91, and 121 of the Federal Aviation Regulations are hereby amended effective April 15, 1967. These amendments are made under the authority of sections 313(a), 601, 602, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1422, and 1424).

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*Parts 121 and 61 are published separately.

Amendment 91-37

Weather Governing Operations in a Control Zone

Adopted: February 10, 1967 Effective: April 16, 1967

(Published in 32 F.R. 2940, February 16, 1967)

The purpose of this amendment is to clarify the rules with respect to flight operations, under various weather conditions, in control zones in which two or more airfields are situated.

The Federal Aviation Agency published a notice of proposed rule making in the Federal Register on August 27, 1965 which proposed an amendment to paragraph 91.107(d) that would permit special VFR landings and takeoffs at an airport within a control zone if the flight visibility during landing or takeoff is at least one statute mile, and there is no accredited observer at that airport to obtain the ground visibility. Additionally, it was proposed to amend paragraph 91.105(c) to prohibit the landing, takeoff, or entry of an aircraft into the traffic pattern of any airport within a control zone under VFR, unless the ground visibility at the airport upon which the control zone is designated and at the airport of intended operation was at least three statute miles. The latter proposal, which would have the effect of governing flight operations at satellite airports by the visibility conditions prevailing at the primary airport, met with substantial opposition as expressed by comments from the public. In the light of the comments received, and after further study of the subject, Supplemental Notice of Proposed Rule Making 65-20A was published in the Federal Register on June 7, 1966, (31 F.R. 8026) which proposed to amend paragraph 91.105(c) to permit VFR operations at a secondary airport within a control zone when the necessary visibility conditions prevail at that secondary airport, regardless of whether VFR conditions exist at the primary airport.

Interested persons were afforded an opportunity to participate in the rule making through the submission of comments. Due consideration was given to all comments received. The comments received in response to the supplemental notice indicated a general endorsement of the revised proposal, except as noted below.

The Air Transport Association objected to the revised proposal to amend paragraph 91.105(c) because the proposed rule would permit VFR aircraft, not in contact with ATC, to operate in the same airspace with IFR traffic without adequate observation by ATC.

It must be recognized that, except in positive control areas, the airspace is subject to simultaneous use by IFR and VFR traffic, when weather conditions are equal to or better than VFR minimums. Under these weather conditions, the present level of observation by ATC of VFR flights and the "see-and-be-seen" concept have provided an adequate level of safety.

The Air Lines Pilots Association, the Department of the Air Force, and the Civil Aeronautics Board in their comments on the proposal, objected to permitting pilots to determine the prevailing weather conditions themselves in order to conduct their own VFR operations. The comments stated that relatively inexperienced pilots are not capable of accurately determining flight visibility, and that the rule would entice pilots to operate below basic VFR weather conditions in a control zone.

The entire system of VFR operations is based on a "see-and-be-seen" concept with flight visibility being measured from the cockpit, and a determination by the pilot whether, in fact, he is in VFR weather conditions. The great majority of aircraft operations are conducted under Visual Flight Rules. Pilots conducting these operations must determine whether they are operating in basic VFR conditions. This has been the case for many years. In general, the Agency has found that pilots have exercised this responsibility with the proper degree of care and that, when doubt exists as to weather conditions, pilots will request either a Special VFR or IFR clearance.

The Agency does not believe, as was stated in one of these comments, that the proposal would "entice" pilots to operate below basic VFR weather conditions in a control zone, any more than the interpretation given to current regulations that establishes the visibility at the primary airport as controlling all airports in the control zone. If the visibility at the primary airport is considered as the governing factor, a pilot operating from a secondary airport may feel that, if the visibility at the primary airport is reported as basic VFR, he may operate from the secondary airport even though the visibility conditions at that airport are below basic VFR. The Agency believes that the actual visibility conditions in which an aircraft operates should control these VFR operations and that in the absence of visibility measuring instrumentation in the cockpit, the ATC system must continue to rely on the pilot to determine flight visibility values.

In consideration of the foregoing, paragraphs 91.105(c) and 91.107(d) of the Federal Aviation Regulations are amended to read as hereinafter set forth, effective April 16, 1967.

These amendments are made under the authority of §§ 307, and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354).

Amendment 91-38

Glider Towing Operations

Adopted: February 10, 1967 Effective: May 17, 1967

(Published in 32 F.R. 3000, February 17, 1967)

The purpose of these amendments to Parts 61 and 91 of the Federal Aviation Regulations is to provide general rules for conducting glider towing operations without obtaining certificates of waiver. They add to Part 61 required qualifications for a pilot in command of a civil aircraft towing a glider, and add to Part 91 requirements on tow-hitches, towlines, and notification of control towers or FAA flight service stations as to towing operations within control zones, and a prohibition against unsafe intentional release of the towline by the towing aircraft after the glider is released. These amendments were proposed in Notice 66-23 issued on June 10, 1966, and published in the Federal Register on June 16, 1966 (31 F.R. 8438).

The comments received on Notice 66-23 generally supported the objectives of the proposals. Only one comment opposed the proposal to replace the issuance of individual waivers with general rules, asserting that valuable control would be lost by the elimination of the waiver requirement. However, as stated in the notice, there is adequate justification to eliminate the administrative burden involved in the issuance of individual certificates of waiver for routine glider towing operations. Also, the regulatory approach is more positive, and it provides more standardization and uniformity of requirements.

A number of the generally favorable comments recommended changes in the proposals. The principal change suggested on qualifications for a pilot in command of a towing aircraft, was either that the 200 required hours of flight time experience for a private pilot should be acquired in powered aircraft, or that the number of hours should be reduced to 100 hours. The former approach would prevent, for example, an airman with as little as 35 or 40 hours of powered flight experience but with the remainder of the 200 hours in gliders, from acting as the tow pilot in command. Proponents of the latter approach asserted that the 200-hour requirement would disqualify many experienced tow pilots who have been operating pursuant to certificates of waiver. They also contended that the other requirements proposed by the notice would assure satisfactory competency without a flight experience requirement as great as 200 hours. Still a third suggested change was that the 200 required hours should be specifically allocated between hours in powered aircraft and other aircraft.

Upon further consideration of the matter in light of the comments received, the Agency has concluded that it is appropriate to provide that a private pilot may use 100 hours of pilot flight experience in powered aircraft as an alternative method of meeting the total pilot flight time requirement. The 200-hour flight time requirement proposed in the notice did not specify a minimum amount of powered aircraft time, therefore private pilots with a substantial amount of other than powered aircraft time could meet that requirement. While glider flight experience undoubtedly is valuable for a pilot who wishes to tow gliders, powered aircraft flight experience is of greater significance from the standpoint of qualification to operate a towplane. At the same time, however, it may be noted that a commercial pilot certificate with an airplane or rotorcraft rating may be obtained with a minimum of 100 hours of the total flight experience in powered aircraft, and the holder of that certificate meets the pilot certificate requirements of Notice 66-23.

Some comment was concerned with the 80 percent minimum breaking strength requirement for towlines proposed for § 91.17(a)(3), asserting that breaking strength should be related to thrust versus drag, or that it should be determined by a drag-load formula rather than the maximum certificated operating weight of the glider. Other comment was concerned with the breaking strength of the safety link specified for use where the breaking strength of the towline is permitted to exceed twice the weight of the glider. After further consideration of this matter, the Agency has concluded that the proposed criteria are reasonable and needed for safety. Other comments, beyond the scope of the notice, recommended specifying a minimum length for the towline, or that metallic cable should not be allowed.

Some comment apprehended that notification required under proposed § 91.17(a)(4) would be necessary before each flight within a control zone. Other comment felt that an agreement on a course of action by the pilots involved should not be necessary before each flight, as proposed for § 91.17(a)(5). The Agency agrees with the substance of these comments. Accordingly, these amendments provide that the notification need be given only before conducting towing operations within a control zone (unless required by ATC before each flight where there is an operative control tower within the zone). Also, it is provided that prior agreement of the pilots on a course of action must be reached before engaging in any towing operations but not necessarily before each flight.

Some comment suggested that it should be made clear that the prohibition of proposed § 91.17(b) against releasing a towline in a manner so as to endanger the life or property of another applies only after the glider has been released. This was the intent of the proposal, and it has been clarified in these amendments.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

In consideration of the foregoing, Parts 61* and 91 of the Federal Aviation Regulations are amended, effective May 17, 1967.

These amendments are made under the authority of sections 307(c), 313(a), and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1421).

NOTE.—The recordkeeping and reporting requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

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*Part 61 is published separately.

UNNUMBERED AMENDMENT

Technical Amendments to Reflect Transition to Department of Transportation

Adopted: April 4, 1967 **Effective: April 1, 1967**

(Published in 32 F.R. 5769, April 11, 1967)

The purpose of these amendments is to make changes in the Federal Aviation Regulations that are necessary because of the taking effect of the Department of Transportation Act (49 U.S.C. 1651 et seq.) on April 1, 1967. On April 1, 1967, the Federal Aviation Agency became the Federal Aviation Administration in the Department of Transportation, and the aviation safety functions of the Civil Aeronautics Board under Titles VI and VII of the Federal Aviation Act of 1958 were transferred to the National Transportation Safety Board.

This rule-making action therefore changes the term "Federal Aviation Agency", wherever it occurs in the Federal Aviation Regulations, to "Federal Aviation Administration", and the word "Agency" when used alone to denote the Federal Aviation Agency to "FAA". For reasons of economy the editions of these regulations that are currently for sale will not be reprinted merely to make these changes. Whenever they are reprinted for other reasons, the printing changes will be made. However, the pages of Part 1 reflecting the changes in definition of the term "Administrator" and the abbreviation "FAA" will be reprinted as soon as possible.

The changes made in the Parts containing references to the Civil Aeronautics Board that are affected by the transfer of functions to the National Transportation Safety Board are self-explanatory. Pages containing these changes will also be reprinted as soon as possible.

Notice and public procedure thereon are not required since these amendments merely reflect changes of law, and they may therefore be made effective immediately.

In consideration of the foregoing, the Federal Aviation Regulations (14 CFR Chapter I) are amended, effective April 1, 1967.

These amendments are made under the authority of sections 3(e), 6(c) and 9(f) of the Department of Transportation Act (15 U.S.C. 1652(e), 1655(c), 1657(f)) and section 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a)).

Amendment 91–39

Category II Operation: General Aviation Airplanes

Adopted: April 25, 1967 **Effective: August 7, 1967**

(Published in 32 F.R. 6901, May 5, 1967)

The purpose of these amendments to the Federal Aviation Regulations is to prescribe the requirements for a Category II operation. Compliance with these requirements will allow the conduct of an ILS approach and landing at certain airports with minima as low as a 100 foot decision height and 1200 feet RVR. These amendments apply to all operations under Part 91, and to operations by air taxi and commercial operators under Part 135.

The substance of these rules was fully discussed in FAA Notice No. 65–35 as published in the Federal Register on November 24, 1965, (39 F.R. 14600). As stated in that notice, the use of Category II minimums by general aviation operators, and air taxi and commercial operators, is premised upon the following general requirements to be adopted by the FAA within the framework of the Federal Aviation Regulations: (1) pilot qualifications and proficiency; (2) airplane equipment and maintenance; and (3) airport ground facilities.

Based upon public comments received in response to the notice and upon review within the FAA, a number of changes have been made to the proposed rule. Most of these involve rewording and reorganization for greater clarity and consistency, but several changes affect the substance of the rule. The issue of a supplementary notice of proposed rule making to solicit comments upon these changes was considered. However, comments from the public on the original notice and from within the FAA indicated that the further delays attendant to this course of action would not be in the best interest of those concerned. Consequently, the FAA is issuing a final rule and is soliciting further public comment on the substantive changes with a view towards possible future amendments. This action will allow those operators who have prepared for Category II operations to proceed with their qualification under these rules without further delay. The FAA feels that this course of action is justified and is in the best interest of the public since the proposed rule was a relaxation of present regulations and therefore substantive changes would not impose any greater burden upon those affected than already exists.

Interested persons are invited to submit comments in duplicate addressed to Federal Aviation Administration, Office of the General Counsel, Attention: Rules Docket, 800 Independence Avenue, S.W., Washington, D.C. 20590.

The most significant change expands the rule to apply to small non-turbojet airplanes. Comments on the notice indicated both the desire and the capability on the part of some operators of these airplanes to conduct Category II operations. Therefore, the rules adopted contain no limitation on the type of airplane that may be approved for Category II operations. They apply to all airplanes, large or small, operated under Part 91, and operated by Air Taxi and Commercial Operators under Part 135 of these regulations.

In addition, a number of these comments expressed the opinion that small aircraft could safely conduct Category II operations under existing IFR requirements, some of them with a single pilot. Studies are being conducted to determine the feasibility of establishing less stringent rules for smaller and slower aircraft. A separate proposal for these aircraft may be initiated at a later date.

Other more significant changes to the notice will: (1) add certain definitions and symbols to Part 1 for use in the regulations and approach procedures; (2) require recent pilot experience for make and model of equipment; (3) add a list of required ground components; (4) make mandatory the procedures and instructions contained in the Category II manual; (5) add a marker beacon receiver to the equipment list and delete several other items of equipment; (6) remove the corrected barometric altimeters as a means for determining decision heights below 150 feet; (7) limit the evaluation program to the low approach system (flight control guidance system) and impose new criteria for the other equipment; (8) require the demonstrations of the evaluation program to be under simulated instrument conditions; and (9) require certain portions of the maintenance program to be performed by certificated repair stations.

Although the rules adopted are basically the same as those proposed in the notice, the changes mentioned above and other minor changes were made in response to comments from within and without the FAA. These changes are explained in detail below.

1. Definitions.

(a) It has been determined by the FAA that the term "Category II operation" should be defined in Part 1 of the Federal Aviation Regulations. As defined, the term will encompass all approaches under ILS instrument approach procedures designated as Category II by the Administrator or other appropriate authority. Other appropriate authority includes the Armed Forces of the U.S. and foreign governments.

Since the use of a decision height is an integral part of a Category II operation and it is not defined in the regulations, Part 1 has also been amended to include a definition of the term "decision height" similar to that contained in AC 120-20.

(b) The symbols "Cat. II," "DH," and "RVR" are added to § 1.2 for use in Category II instrument approach procedures and other parts of the regulations. "RVR" is measured in the touchdown zone since at some airports this information is available for the rollout zone as well.

2. Airports.

As stated in the notice, the runway visual range and decision height minimums for each airport at which a Category II operation is authorized will be prescribed by the Administrator under Part 97, and shown in the appropriate approach charts for the airport.

The criteria for the ground system and for obstruction clearance that are used by the Administrator for establishing a Category II approach at an airport are shown in AC 120-20.

3. Pilot qualifications and proficiency.

(a) As the notice would have limited Category II operations to airplanes that require a type rating, there was no necessity for placing that particular limitation on the Category II pilot authorization. However, it was the intention of the FAA that no person should act as pilot in command during a Category II operation unless he was qualified in that type airplane. Since type ratings are not now required for small non-turbojet airplanes, it is now necessary to limit a Category II authorization to the type airplane in which a pilot has passed a practical test. The necessary limitations are accomplished by changes to §§ 61.3(g) and 61.38 (redesignated as § 61.37A).

(b) The proposal would have required Category II authorizations for all pilots of foreign aircraft and for Part 91 operations by air carriers and commercial operators. In order to avoid this problem, an authorization for Category II operations that is granted by the country of registry of an aircraft is now acceptable under § 61.3(g) and subparagraph (3) of this section now excludes operations by Part 121 certificate holders.

(c) In response to comments received, the FAA has decided to permit, in all airplanes including turbojets, the use of a flight control guidance system consisting either of an automatic approach coupler or a flight director system. In view of this modification of the equipment requirements, the experience requirements of § 61.37A(b)(2) have been changed to provide that at least three of the six ILS approaches must be manual, without the use of an approach coupler.

(d) The recent experience requirements for taking the periodic test are now applicable only to individuals who have not passed a practical test during the past year.

(e) The experience requirements of § 61.37A(b) have also been changed to make it clear that the required ILS approaches need not be conducted down to the minimums prescribed for Category II operations.

(f) Three comments suggested that the proposed rules be revised to allow the use of flight simulators for alternate practical tests after original qualification. Disposition of these comments is being withheld until more information is available as to the retention of proficiency by pilots holding Category II authorizations.

(g) Category II pilot tests, both original and periodic, will be given by an FAA inspector or an examiner designated by the Administrator. Standards for the qualification and designation of examiners are being developed and will be published in the near future.

(h) Since the rules adopted herein permit Category II operations with all airplanes and will also permit the use of either a flight director system or an automatic approach coupler, the instrument flight test procedures and maneuvers of the proposal have been changed to cover all airplanes using either equipment. Those multiengine airplanes lacking engine-out performance capability to make a missed approach are treated as single engine airplanes under these provisions.

(i) The requirement of a class or type rating for the second in command on a flight test has been added to § 61.37A(c)(2) to bring it in conformity with § 91.21.

(j) Due to the considerable variance in operation and presentation of different makes and models of flight control guidance systems it was the intent of the FAA, as expressed in the preamble to the notice and in § 61.3(g), to limit pilot authorizations to the particular make and model equipment used in the practical test. However, it has been determined that the purpose of this limitation can be accomplished by less restrictive means. Although a pilot authorization will not be so limited, § 61.47(h) will require the pilot in command to have recent experience with the particular equipment used in a Category II operation in addition to the renewal testing required under § 61.10. The experience may be acquired under actual or simulated instrument flight conditions and may be approaches made on the practical test, during training, or during actual operations.

4. Operating requirements.

(a) Since the operations specifications of air carriers and commercial operators are only applicable to Part 121 operations, the proposed rules would have been applicable to Part 91 operations for these operators. The language of the exclusion has been expanded to avoid any applicability to Part 121 certificate holders. Section 91.6(d) also provides that Part 91 Category II operations by these operators must be conducted in accordance with Part 121 operations specifications. Although foreign aircraft will be covered by the general operating rules of § 91.6, the requirements concerning equipment, maintenance, and the Category II manual are only applicable to civil aircraft of United States registry.

(b) The format of § 91.6 of the proposal has been changed and only proposed paragraphs (a)(3) and (a)(4) remain in that section. A new paragraph (b) establishes the requirement of normal operation by all ground components of a Category II ILS and allows certain substitutions.

The language of § 91.117(h) was not particularly appropriate to Category II operations and the substance thereof has been added to § 91.6 in a new paragraph (c). Since either the pilot's authorization (as provided in § 61.5(e)) or the lack of decision height equipment in the aircraft (under § 2 of Appendix A, to be discussed below) may limit the operation to a 150 foot decision height, these limitations must be considered in addition to the decision height prescribed in the approach procedure.

The rules adopted do not set forth any restriction on the initiation of an approach. This allows general aviation pilots to conduct a Category II operation without regard to the reported weather just as they may do with a normal ILS approach. However, if the airplane is not in a position to land with the pilot having a visual reference to the runway, a missed approach must be executed at the authorized decision height. The additional 50 foot descent allowed by § 91.117(h) when the airplane is clear of clouds is not applicable here because of the very critical altitudes to which descent is allowed in Category II operations.

(c) Most of the provisions regarding the Category II manual have been transferred to the Appendix. Section 91.34(a)(3) will require continuing compliance with the provisions of the maintenance program with respect to those instruments and equipment required for a particular approach. For instance, the operator would be in compliance for an approach to a 150 foot decision height, without a properly maintained radio altimeter or inner marker receiver, but would be in violation of this section if the same approach were continued to a 100 foot decision height.

The operational procedures, instructions, and limitations approved as a part of the Category II manual would serve very little purpose if they are not followed in the actual conduct of a Category II operation. Compliance with these approved procedures, instructions, and limitations is specifically required in § 91.34(a)(2).

(d) Proposed § 91.169(d) is deleted and its substance is incorporated in new § 91.34(a)(3).

5. Airplane equipment.

(a) A sentence has been added to § 2 of the Appendix to emphasize that there is no necessity of duplicating instruments and equipment already required by § 91.33 and other provisions of the regulations.

(b) Section 2 of the Appendix has been divided into two groups of required instruments and equipment to avoid any misunderstanding as to those instruments and equipment subject to the various requirements of the maintenance program. Group I instruments and equipment must be bench checked both prior to approval and as a part of the maintenance program. In addition, they must be inspected or functionally flight checked once every three months. On the other hand, Group II instruments and equipment do not require special maintenance procedures other than those necessary to retain the original approval condition.

(c) A number of items in the equipment list have been reworded for clarity as to exactly what is required. Where applicable, the language has been brought into conformity with that used in § 91.33.

(d) In response to comments received, a sentence has been added to the ILS localizer and glide slope receiver requirements of § 2(a)(1) to provide that a single localizer antenna and glide slope antenna may be used. However, certain ILS installations have a single antenna and power source serving both the ILS receivers and the VHF communications system. With such an installation, use of the VHF communications causes loss of ILS indications, an undesirable situation during a Category II operation. Therefore, § 2(a)(2) requires that the use of the communications system must not affect the ILS system.

(e) A marker beacon receiver for the outer and middle marker is required by § 91.117(i) for ILS approaches, but this does not provide for distinctive indications. Since all airports with Category II approaches will be required to have an inner marker that is necessarily very close to the middle marker, the pilot must have a positive means of distinguishing between the two. This is provided for by §§ 2(a)(3) and (10) of Appendix A.

(f) It has been determined that the free air temperature gauge and the dual systems for communications, power, and static pressure are not necessary.

(g) The flight control guidance system requirements have been amended to apply to all airplanes and now permit the use of either an automatic approach coupler or a flight director system.

(h) It has been decided that a special decision height system is not necessary for Category II operations with decision heights of 150 feet or greater. Operations to this height can be safely conducted using the barometric altimeters if there is available to the pilot a placarded correction for the instrument scale error and for the wheel height of the airplane. Scale error is determind by an altimeter test and inspection under Appendix E to Part 43. The wheel height correction is necessary only if the wheel-to-instrument height is in excess of the 10 feet presently allowed for in U.S. Weather Bureau altimeter settings provided for aircraft. For instance, a Boeing 707 aircraft has a 19 foot wheel-to-instrument height and would require a 9 foot correction under this rule.

The notice would have allowed either a radio altimeter or specially corrected barometric altimeters as a means for determining decision height at airports without an inner marker. These alternatives were derived from the requirements for air carriers who have been conducting Category II operations without inner markers. However, since publication of the notice, plans have been completed for inner marker installations at all airports that will be authorized for Category II operations. Consequently, the necessity for alternative decision height equipment is substantially diminished. The major purpose that the alternatives now serve will be to permit the conduct of a Category II operation when a ground or airborne component of the inner marker system is inoperative. In addition, considerable difficulty has been encountered in establishing a test program that will adequately correct barometric altimeters for use at a 100 foot decision height. This has prevented the FAA from developing standards by which the accuracy of the altimeters can be measured. In view of these factors, which make the use of this alternative unlikely, the FAA has decided to delete the barometric altimeters as a system for identifying decision heights below 150 feet.

This is not intended to preclude the use of the barometric altimeters at the lower decision heights if the satisfactory test program can be developed and they can be corrected so as to allow safe operation at a height of 100 feet. At such time the FAA will consider a change to the equipment list to allow their use as a decision height identification system.

(i) The missed approach attitude guidance is deleted as unnecessary. The attitude gyro systems will invariably provide this guidance without imposition of an additional requirement.

(j) The essential instruments and equipment that require failure warning systems have been specifically listed in § 2(b)(1) of the Appendix.

(k) Although the whole tenor of the notice was that only dual piloted airplanes would be approved for Category II operations, dual controls were not provided for specifically. This deficiency is remedied in § 2(b)(2).

6. Approval of equipment.

(a) The notice provided for approval of all instruments and equipment by either type or supplemental type certification or by an equipment evaluation program. However, the demonstrations of the evaluation program were designed only to test the flight control guidance system (low approach system). Consequently, the section of the Appendix has been reorganized to provide more realistic criteria for approval of the other instruments and equipment.

(b) The first two paragraphs of proposed § 2 have been combined into § 3(a). The reference to method of approval contained is dropped and new paragraphs (b), (c), and (d) now contain the criteria for approval of instruments and equipment.

(c) New § 3(b) now provides the three alternative methods of approval only for the flight control guidance system. In addition, it specifically requires approval of changes to make, model, or design. However, approval of these changes will not necessarily involve the same burden as the initial approval. Since the evaluation program demonstrations can be waived by the Administrator, it is possible for minor changes to be approved without any demonstration flights. Optional equipment, although not required by § 2 of the Appendix, must also be approved if it is to be used in Category II operations.

(d) The radio altimeter, if it is to be used as decision height equipment, is a critical system requiring stringent approval criteria. The evaluation program was deficient in this regard and separate performance criteria for approval have been established in new § 3(c).

(e) The balance of the required instruments and equipment are approved under new § 3(d) which is self-explanatory. It should be noted that only those changes that constitute alterations need be approved once the basic system has been approved.

(f) The evaluation program has been moved from § 2(c) to § 3(e). Application is made as a part of the application for approval of the Category II manual. Approval of the contents of the manual, including the maintenance program, will proceed concurrently with the instrument and equipment approval. Upon successful completion of the evaluation program, approval of the other instruments and equipment, and approval of the contents of the manual, the manual itself will be approved for that airplane. Thereafter, the airplane may be used in Category II operations, subject to the other operating rules.

(g) The requirements of the demonstrations have been reworded with two minor changes. Glide slope deviation allowable on a successful approach has been redefined in terms of indicator deflection and the demonstrations must be conducted under simulated instrument conditions in order to adequately evaluate the operation of the system. This does not preclude demonstrations under actual conditions to normal ILS minimums and then under simulated conditions to 100 feet. However, since the airplane is not approved for Category II operations, it cannot be used in an approach under actual instrument conditions to 100 feet.

(h) No time limit for keeping evaluation program records was set in the notice. The final rule now requires this only for the duration of the program.

(i) A new subparagraph (4) has been added to the evaluation program since it was possible for a flight control guidance system to meet the criteria for successful approaches and still have dangerous design deficiencies. The criteria for successful approaches are not intended to be the sole standard for approval.

7. Maintenance.

(a) A number of comments expressed concern over the large volume of material the operator would have to place in the maintenance portion of his Category II manual. In response to these comments, the FAA is preparing an Advisory Circular that will contain guidelines from which an acceptable and moderate sized maintenance program for Category II instruments and equipment can be developed by the operators involved.

(b) The portions of the proposed § 3(a) relating to program approval are deleted since the maintenance program is an integral part of the Category II manual and will be approved as part of that document.

(c) In view of the misunderstanding of the term "overhaul," used in the maintenance program of the Appendix, it appears desirable to substitute the term "bench check" for the term "overhaul." The term "overhaul" denotes a complete tear down and reassembly. A "bench check," however, usually denotes a removal of the item from the airplane; a visual inspection for cleanliness, impending failure, need for lubrication, and need for repair or replacement of parts; the correction of any deficiencies found; and calibrations to the proper specifications. Since the latter meaning is intended, all references in the maintenance program have been appropriately amended.

In addition, a definition of a "bench check" has been included in § 4(b) of the Appendix. One comment noted that any appropriately rated FAA approved repair station should be able to perform maintenance on required Category II equipment. Therefore, it would be unnecessary to list in the maintenance program each maintenance facility to be used by the operator. The FAA agrees and has deleted this requirement from the contents of the maintenance program. However, bench checks (overhaul) are now required to be performed by certificated repair stations.

(d) The notice would have required evidence of bench check (overhaul) of equipment within six months before application for approval of the maintenance program. The six month period is changed to 12 months, and the section is rearranged and placed in § 3 so it is more clearly a requirement for approval rather than a part of the maintenance program. Specific criteria for these prior checks are also placed in new § 3(a). The references to Advisory Circular 20-31 in the proposal are replaced by an RTCA paper since this is the only portion of the advisory circular that must be followed. A statement of cost and availability of the RTCA paper is also included.

(e) The list of instruments and equipment in the contents of the maintenance program is reduced to those specified in § 2 of the Appendix instead of all those required by § 91.33(f). It is also limited to those items that are approved for Category II operations and therefore subject to the maintenance program.

(f) The provisions of §§ 3(a)(3), 3(a)(6), 3(b), and 3(c) have been reorganized and now comprise subparagraphs 4(a)(2) through (5) in the contents of the maintenance program.

(g) Section 3(a)(5) is deleted and its purpose is achieved by § 91.34(a)(3).

(h) The inspection schedule calls for inspections every three months as opposed to four inspections every 12 months proposed in the notice. The operational flight check is now called a functional flight check and the pilot's authorization must include the type airplane in which the equipment to be checked is installed.

(i) A new § 4(a)(6) will assure that the pilot is aware of any defects in instruments and equipment listed in the maintenance program. The knowledge will enable him to decide whether or not the airplane can be used in a Category II operation. If it can be so used, he will also know if it is limited to a 150 foot decision height because of a defect in the decision height system.

(j) Section 4(a)(7) assures that the listed instruments and equipment upon which maintenance is performed are returned to their originally approved condition. The ability to legally conduct a Category II operation depends on compliance with the maintenance program and this procedure will be a part of that program. Therefore, if a piece of equipment is required for a particular Category II operation, but has not been maintained in its approved condition, the maintenance program has not been complied with and the airplane cannot be used for that Category II operation.

(k) Since § 43.9 requires maintenance records to be maintained in accordance with that section, the first sentence of proposed § 3(d) which referred to the recordkeeping requirements of § 43.9 is unnecessary and has been deleted from the rules as adopted. The requirement for data respecting a discontinued Category II approach has been retained in § 4(a)(8).

(l) A number of comments objected to the periodic maintenance requirements proposed for Category II navigation and communication equipment, particularly the requirement for an annual bench check. The FAA believes that the proposed periodic maintenance requirements are realistic and necessary, especially during the initial period of authorization to engage in Category II operations. However, the rule has been revised to allow extension of periodic maintenance intervals after the completion of at least one 12-month maintenance cycle, if the operator can show that longer intervals are justified on the basis of his operating experience.

8. Part 135—Air taxi and commercial operators.

(a) In response to requests received from Part 135 operators, the FAA has concluded that Category II operations should also be authorized for qualified operators of airplanes under Part 135. Since the rules of Part 91 apply to operations under Part 135, the amendments to Part 91 will apply to operations under Part 135. Each holder of an ATCO certificate will be required by § 135.9(a) to obtain an appropriate authorization in his operations specifications before conducting Category II operations under

Part 135. This authorization will be given upon a showing by the operator that he meets the requirements of Parts 61 and 91 for a Category II operation. Those operators presently authorized to conduct Category II operations should continue to follow their present operations specifications until they are amended to provide for the conduct of those operations under Part 91.

(b) In order to make clear that two pilots are required for Category II operations and that such operations are not subject to the exceptions for limited IFR conditions and for the use of an autopilot system, a new § 135.72 has been added.

Upon consideration of the comments received in response to Notice 65-35, Parts 1, 61, 91, and 135 of the Federal Aviation Regulations are amended effective August 7, 1967.

These amendments are issued under the authority of sections 313(a), 601, 602, 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354 and 1421-1423).

NOTE.—The recordkeeping and reporting requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

Amendment 91-40

Altimeter System Requirements

Adopted: May 16, 1967 **Effective: August 1, 1967**

(Published in 32 F.R. 7585; May 24, 1967)

The purpose of this amendment to Parts 23, 25, 43, and 91 of the Federal Aviation Regulations is to revise the design standards concerning static pressure systems and to revise the test requirements applicable to the maintenance of altimeter systems.

This amendment is based on a Notice of Proposed Rule Making (Notice No. 66-44) published in the Federal Register on December 31, 1966 (31 F.R. 16790).

Numerous comments were received in response to Notice 66-44, most of which were in agreement with the proposal. The more pertinent of the comments that raised questions together with the changes in the proposal resulting therefrom are discussed hereinafter.

With reference to the static pressure system proof test required under both Part 23 and Part 25, an inconsistency in wording was noted in regard to the pressure differential at which the tests are run for unpressurized aircraft. Since there is no reason for different requirements, § 25.1325(c)(2)(i) has been modified to require a pressure differential of approximately 1 inch of mercury rather than the absolute value of 1 inch as stated in the Notice.

One commentator pointed out that the requirement that the proof tests of the static pressure systems on unpressurized aircraft be conducted with the static pressure system evacuated to a pressure differential based on an altimeter reading of 1000 feet at sea level could be confusing to people located at elevations above 1000 feet mean sea level. The FAA agrees and §§ 23.1325(b)(2)(i) and 25.1325(c)(2)(i) have been further amended to permit the proof test of unpressurized aircraft with the static pressure system evacuated to an atimeter reading of 1000 feet above the airplane elevation at the time of the test.

It was recommended that § 25.1325(c)(2)(ii) be changed in its entirety to provide a new leak test tolerance formula that would reduce test ambiguities resulting from calculating the two percent tolerance using pounds per square inch or feet altitude at different airport elevations. In this connection, the FAA previously investigated the feasibility of establishing a quantitative static system test. That investigation, however, indicated that a quantitative test was much too complex for general use but that the simplified qualitative test would be satisfactory and would provide adequate results without any adverse effect on safety. The latter was accordingly proposed in the Notice. In the interest of simplicity and ease of performance, the FAA is retaining the test references in terms of feet altitude even though this qualitative approach may give minor differences in test results where the tests are run at different field elevations.

One commentator stated that the proposed § 23.1325(b)(3) requirement for a correction card where altimeter readings on primary and alternate static systems differ by more than 50 feet, is too restrictive at high altitudes and high Mach numbers and suggested clarification as to the range of altitude and Mach numbers applying to this tolerance. However, the FAA believes that the proposed requirement is necessary to assure proper vertical separation considering the entire altitude-speed range. In the high Mach—high altitude regime, the static system accuracy may be marginal at best and errors introduced while on the alternate system could lead to hazardous operation if the pilot is not informed of the magnitude of the error. In the low speed—low altitude regime, static system errors are minimized so that correspondence between the two systems should pose no problem.

As noted by one commentator, the first altitude entry in Table I, Appendix E, Part 43, was inadvertently printed as 1000 feet when it should have been −1000. The Table has been corrected accordingly.

One of the comments contained a recommendation that section (c) of Appendix E should be changed to require recording of date and test altitude on the altimeter dial. The FAA does not, however, agree with the recommended change. Such a requirement would result in the unnecessary cluttering of the instrument face and unnecessary expense and inconvenience due to instrument removal and teardown in order to record the information on subsequent inspections. The requirement that the date and maximum altitude to which the altimeter has been tested be recorded on the altimeter, is necessary to provide the information for entry in the airplane log or other permanent record when the instrument is installed in an airplane. With the maximum altitude for the altimeter entered in the aircraft log, there is no need, insofar as the pilot is concerned, to enter that data on the face of the instrument.

In connection with the altimeter test and inspection, comments variously suggested the importance of preliminary pitot system checks to preclude damage to the airspeed meter, of periodic purging of pitot and static lines, and of information concerning the accuracy of altimeter test equipment. The FAA sees merit in these comments, and contemplates that to the extent that it has not already been accomplished, such information will be presented as acceptable means of compliance with the proposed rules in appropriate Advisory Circulars.

One commentator suggested changes to section (c) of Appendix E to eliminate the requirement for commercial operators to prepare records under § 43.9 in addition to those they presently keep. Commercial operators of large aircraft maintained in accordance with a continuous airworthiness program under Part 121 are exempted from the requirements of § 91.170 by the provisions of § 91.161. Therefore, there is no need for the recommended change insofar as such operators are concerned. On the other hand, commercial operators of small aircraft are governed by Part 135 of the FARs and they are not required to maintain their aircraft under a continuous airworthiness program. The provisions of present section 43.9(a) apply to such operators and they would not, by the proposed rule, be required to prepare records in addition to those they presently keep. The recommended change is, therefore, unnecessary.

Expressing the belief that the proposed regulation would require periodic removal of the altimeter instruments for the required tests and inspections, one comment indicated that extensive work behind the instrument panel can cause malfunctions of other equipment disturbed in the process. For this reason, the comment suggested that there should be an amendment to allow airframe repair stations to use external connections to test the static system and the altimeter using a reference altimeter that is calibrated against a master semi-annually. The FAA presently permits the use of external connections to test the static and altimeter systems. However, the Advisory Circular covering this matter suggests that the reference altimeter be calibrated once each month until the necessary interval between calibration checks can be determined. Using this procedure, it may be that the accuracy of the reference altimeter can be maintained by a semi-annual calibration.

The proposal has not been revised in accordance with the recommendation that altimeters and static systems be tested and inspected once each year instead of each 24 months. Based on current experience as reported by major altimeter manufacturers and repair stations, the FAA has determined that an altimeter instrument and static system will maintain accuracy and integrity for 2 years following a test and inspection. To require yearly tests of either or both systems would impose a burden on owners and operators without a corresponding increase in safety.

Numerous comments were received concerning the persons authorized to perform the tests and inspections of the static pressure system and the altimeter instrument. One comment suggested that the designation should have included non-certificated repair stations and fixed base operators. In this connection, it should be pointed out that the static pressure system and altimeter instrument tests and inspections are maintenance items and must, therefore, be performed by persons certificated to perform maintenance. Moreover, the tests and inspections require sophisticated test equipment and a capability that must be maintained under a system of periodic inspections. It is only through the certification procedures that the FAA is able to regularly conduct surveillance of the approved facilities and make periodic determinations as to their capability. Another comment suggested that a certificated "A & P" mechanic should be permitted to conduct the necessary tests and inspections. The FAA agrees with this comment insofar as the static pressure system tests are concerned and the regulation has been so revised. However, the FAA does not consider that it would be appropriate to authorize certificated mechanics to conduct the required altimeter tests and inspections in the light of the test equipment and capability that is necessary for those tests and inspections. The opinion was also expressed that the proposal would permit certificated repair stations with airframe ratings to accomplish an instrument major repair without the necessity of obtaining an instrument rating. As proposed, the rule permits a repair station having an airframe rating to conduct the tests and inspections necessary for the altimeter instrument. However, the rule does not permit repair stations with only an airframe rating to accomplish any repairs to the instrument. Contrary to the understanding of this commentator, the altimeter tests covered under this proposal are not considered to be major repairs to the altimeter. Finally the FAA does not concur with the recommendation that the provision designating the persons authorized to conduct the required inspections and tests be deleted from §91.170 and added to Appendix E in Part 43. While it is true that Appendix E contains the scope of the required inspections and tests that the designated persons are authorized to conduct, the FAA considers that from the standpoint of the owner or operator of an airplane, it would be better to set forth the designation in the operating requirements of Part 91 rather than as part of the technical details of the inspections and tests in the Appendix to Part 43.

The present requirements of § 91.170 apply only to persons operating an airplane in controlled airspace under IFR. The phrase "in controlled airspace," which limits the applicability of § 91.170, was incorporated into the regulation after consideration by the Agency in an appropriate rule-making action. However, a comment has now been received in response to Notice 66-44 requesting the FAA to delete the phrase "in controlled airspace" on the ground that a substantial number of IFR flights are made within uncontrolled airspace and that there is no reason why the altimetry maintenance and alteration standards should not apply to IFR flight in both controlled and uncontrolled airspace. While this comment involves a substantive change to the present requirements that goes beyond the scope of this Notice of Proposed Rulé Making, the FAA believes that it warrants further consideration in connection with other altitude indication projects now in process.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all matter presented.

In consideration of the foregoing, Parts 23, 25, 43, and 91 of the Federal Aviation Regulations are amended effective August 1, 1967.

This amendment is made under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1423).

Amendment 91-41

Operable Condition of Required Instruments and Equipment and Increased Maximum Certificated Weight for Certain Airplanes in Alaska

Adopted: June 6, 1967 **Effective: July 13, 1967**

(Published in 32 F.R. 8405, June 13, 1967)

The purpose of these amendments to Parts 91 and 135 of the Federal Aviation Regulations is to expressly provide that the instruments and equipment required by §§ 91.33(a) and 135.143(b) for particular aircraft operations must be in operable condition. In addition, this amendment contains a change in the language of § 91.38 that will permit the same increase in the maximum certificated weight for certain small airplanes in Alaska as previously allowed under SR-399D and SFAR-12.

The amendments to §§ 91.33(a) and 135.143(b) were proposed in Notice of Proposed Rule Making No. 66-35 published in the Federal Register on September 29, 1966 (31 F.R. 12736). Interested persons were afforded an opportunity to comment on the proposal and all comments have been considered. A majority of the comments received in response to the notice were in accord with the objective of the rule. Therefore, for the reasons set forth in the notice, the rule is adopted herein without change.

As to the authorization for increased maximum certificated weight for certain airplanes in Alaska, the FAA has found that the insertion of the word "takeoff" in § 91.38 prevents the use of an increased weight for landing as was permitted under SFAR-12 and its predecessor SR-399D. There was no intent to make a substantive change in the provisions of SFAR-12 when it was incorporated into Part 91. Therefore, § 91.38 is amended to conform to SFAR-12 by deleting the word "takeoff" where it appears in that section. Since this amendment involves only the correction of a rule and does not impose any additional burden upon interested persons, notice and public procedure thereon are unnecessary.

These amendments are issued under the authority of sections 313(a) and 601(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421(a)).

In consideration of the foregoing, Parts 91 and 135 are amended effective July 13, 1967.

Amendment 91-42

Data Correspondence Between Automatically Reported Pressure Altitude Data and the Pilot's Altitude Reference

Adopted: June 15, 1967 **Effective: August 15, 1967**

(Published in 32 F.R. 8892, June 22, 1967)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to establish a tolerance for the correspondence of automatic pressure altitude reporting data and the pilot's altitude reference, and to provide for deactivation of the equipment when directed by air traffic control (ATC).

A Notice of Proposed Rule Making was published in the Federal Register on August 5, 1966, (31 F.R. 10538) stating that the FAA proposed amendment of Part 91 of the Federal Aviation Regulations to require that automatic pressure altitude reporting equipment associated with radar beacon transponders be tested and calibrated to transmit altitude data that will correspond within 125 feet, on a 95 percent probability basis, with the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 29.92 inches of mercury. The Notice also proposed that the equipment be deactivated on direction of ATC and that the required testing and calibration be accomplished within 12 calendar months preceding the operation of that equipment.

Interested persons were afforded an opportunity to participate in the rule making through submission of comments. Due consideration was given to all relevant matter presented.

In general, the comments received acknowledged the need for a correspondence tolerance at a high reliability level. Objections to the proposed requirement for periodic testing and calibration of the equipment were expressed and, on reconsideration, the FAA has determined that this requirement can be deleted pending further experience and study. If that experience and study warrants, additional rule making action will be initiated in the future.

The Air Transport Association (ATA) recommended certain specific wording for the regulation, including rewording for clarity. The title has been reworded in consonance with that in the recommendation. The ATA further recommended that the controller-initiated request for deactivation of the equipment be limited, by the regulation, to those circumstances where the equipment is transmitting erroneous information, and not, for instance, to simply alleviate radar scope clutter. ATC will request deactivation of the automatic altitude reporting equipment only in those situations where erroneous data is being transmitted. The controller will have the capability of suppressing or inhibiting altitude information on his radar display without requesting deactivation. In the event that the altitude information displayed to the controller differs from an assigned altitude by an amount that exceeds control tolerances, the controller will initiate communications to verify actual flight altitude and to ascertain that the altitude reporting equipment is functioning properly. The FAA will issue internal instructions and procedures to limit the conditions under which deactivation of the equipment may be directed by ATC. Accordingly, it is not necessary to include that limitation in the regulation.

The ATA also recommended that the language of the rule be reworded to read ". . . on a 95 percent of occasions probability basis . . .," to clarify the intent. It is felt that "occurrence" is implicit in the word "probability" and that the additional language would not contribute to the clarity of the phrase. The purpose of the "95 percent probability" factor is to prescribe for the system an order of accuracy necessary for satisfactory ATC system operation. If the required correspondence value, at the time of installation, is determined by a statistical probability, then it must be at least 95 precent.

The Aircraft Owners and Pilots Association (AOPA) commented that since the controller is interested only in the actual altitude of the aircraft, it did not seem logical to require calibration standards for the digitizer that are more exacting than the calibration requirements for the instrument from which it gets its information. It was also suggested that the periodic maintenance check might be beyond the capability of most repair stations and that a simple accuracy check be substituted. As indicated earlier, the FAA has determined that the requirement for periodic calibration can be omitted at this time, since ATC will be able to monitor system performance and early experience should indicate whether such maintenance is necessary.

It is agreed that the controller's primary interest is in knowing the actual altitude of the aircraft. This is the basic reason for requiring a data correspondence of plus or minus 125 feet. It is recognized that certain inaccuracies are inherent in aneroid systems. Notwithstanding these inaccuracies, it is essential to ATC system performance that the altitude data automatically reported corresponds closely with the altitude data upon which the pilot relies for control of the aircraft.

The Air Line Pilots Association (ALPA) commented that the rule making action might be premature and that it might be advisable to withhold rule making until such time as additional experience is gained from the operation of the Air Traffic Control Radar Beacon System (ATCRBS), utilizing Mode C altitude reporting in the New York area. The ALPA also expressed concern over the possibility that misunderstandings between pilots and controllers might be a basis for enforcement action against pilots.

As indicated in the Notice of Proposed Rule Making, the effectiveness of the ATCRBS program, including early evaluation and implementation, will depend heavily upon the integrity and reliability of airborne equipments. Accordingly, it is felt that this action is necessary and timely. As experience indicates a need for change or correction, additional rule making action may be initiated. The FAA sees no basis for the apprehension expressed with respect to enforcement actions. There seems to be no reason why a pilot would be reluctant to deactivate a malfunctioning system when advised of faulty altitude data by ATC and when deactivation is requested.

The ALPA further recommended a correspondence tolerance of plus or minus 50 feet at the transition points with an allowance of plus or minus 25 feet for coupling errors, and that this tolerance be maintained with a reliability-repeatability factor of 99.7 percent (3 sigma), instead of the proposed 125 feet at 95 percent (2 sigma). It was further observed that since correspondence differences as great as 650 feet had appeared in evaluation of the equipment (Report No. RD-65-10 on Project No. 242-006-03x, UAL/FAA ATC Radar Beacon Altitude Reporting Test, January 1965), the rule making would serve no useful purpose unless these values can be improved.

Assuming that the term "coupling error" refers to the accuracy with which the pressure altitude presented to the digitizer is displayed in the cockpit, the 25-foot tolerance recommended is the same tolerance contemplated by the Notice, as is the 50-foot uncertainty which exists because of reporting in 100-foot increments. Further treatment of this point appears below in discussion of related questions raised by the Bendix Corporation.

On the matter of requiring 99.7 percent (3 sigma) reliability for maintenance of the data correspondence, it is recognized that the higher, 3-sigma, probability might be of some advantage to the ATC system, but it is not considered necessary to require that high a degree of reliability. Added complexity and cost of manufacturing and calibration are factors in the selection of the 95-percent reliability level. This is a widely accepted engineering measure of performance, and study of available material indicates that it is an order of accuracy which is satisfactory for ATC system operation.

The Bendix Corporation suggested that an analysis of the elements which contribute to the 125-foot tolerance be presented, to facilitate a better understanding of the requirement.

The FAA selected the 125-foot correspondence value based on a recognition that this value was reasonable and easily achievable when the same source (aneroid) is used to feed analog information to the pilot's display and to the pressure altitude digitizer. The value is an accumulation of three elements: a variation of plus or minus 50 feet that may exist between the pressure information from the aneroid and the information actually digitized; an uncertainty factor of plus or minus 50 feet that can exist because of reporting in 100-foot increments; and in installations where the altitude reporting equipment has an optional pilot's display, the difference between the aneroid output feeding the digitizer and the pilot's display should not exceed 25 feet.

The digitizer can introduce an error of plus or minus 50 feet (the first 50-foot value mentioned above) into the automatic altitude reporting system. This possible error is a result of converting analog information (from an aneroid or other source) to electrical information (digital) for relay to the transponder. In other words, there is a possible mechanical error of plus or minus 50 feet inherent in the digitizing process which must be taken into account in determining the correspondence value of 125 feet.

One comment in opposition to the rule objected on the basis that the rule was severe, unnecessary, and imposed a monetary burden on private aircraft owners. It should be emphasized that, at this time, the installation of automatic altitude reporting equipment is purely voluntary. However, at some later date when the FAA ground installations are completed, it is the agency's intention to require this equipment when operating in certain airspace. In addition, the deletion of the requirement for periodic maintenance should contribute to minimizing the cost of the operation of this equipment.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective August 15, 1967.

This amendment is made under the authority of sections 307 and 313 of the Federal Aviation Act of 1958 (49 U.S.C. 1348 and 1354).

Amendment 91–43

Careless or Reckless Ground Operation of Aircraft

Adopted: June 27, 1967 **Effective: August 3, 1967**

(Published in 32 F.R. 9640, July 4, 1967)

The purpose of these amendments to Parts 1 and 91 of the Federal Aviation Regulations is to prohibit the careless or reckless ground operation of aircraft on the surface of an airport.

The substance of this rule was proposed in Notice 66–36 issued on October 7, 1966 (31 F.R. 13352). The majority of the public comments received concurred with the proposal. Some comments expressed the opinion that the carless or reckless operation provisions of § 91.9 already covered aircraft used not as an incident to flight, and that therefore the proposed rule was unnecessary. Several comments, that did not oppose the objectives of the proposal, offered counter suggestions to accomplish those objectives by training or qualification of personnel, or control over certain ground movements on the airport. Some comments recommended that the rule should be extended to areas outside an airport such as pastures or roads. These counter suggestions and recommendations are beyond the scope of the proposal and, of course, cannot be considered at this time. Finally, some concern was expressed as to the meaning of the term "use", as included in the proposal to designate the prohibited activity.

As a result of the public comments received, the proposal has been adopted, for the reasons stated in Notice 66–36. However, in view of several of the comments received, clarifying changes were made in the language of the rule.

The principal change in this regard is employment of the term "operate an aircraft other than for the purpose of air navigation" instead of the proposed term "taxi or otherwise use an aircraft, not incident to flight". The former term is employed in this rule in order to clearly limit the applicability of the rule to those acts which impart some physical movement to the aircraft, or involve the manipulation of the controls of the aircraft such as starting or running an aircraft engine. This is the meaning of the term "operate" under § 91.9 and is the meaning generally given to that term under the motor vehicle laws. However, as distinguished from § 91.9, the acts prohibited by the rule as adopted herein are expressly limited to those not performed for the purpose of air navigation.

In order to remove any conflict with the meaning of the word "operate" as defined in Part 1 of the Federal Aviation Regulations and as used in other provisions of the regulations, these amendments also change the Part 1 definition of that word. This change in definition makes it clear that the word "operate" as employed in § 91.10 of this rule does not mean for the purpose of air navigation including the piloting of aircraft for that purpose. To further implement this change in meaning of the word "operate" as employed in § 91.10, the word has been eliminated elsewhere in that section where it would have connoted a different meaning. For this reason, the term "used by aircraft for air commerce" has been substituted for the term "used for the operation of aircraft in air commerce" as proposed by the Notice.

Finally, in response to some comments, the language of the proposal was changed to specifically include within the term "surface of the airport used by aircraft for air commerce" the areas used by those aircraft for receiving or discharging passengers or cargo. This change will make it clear that the rule is not limited to the runways and taxiways of the airport surface.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

In consideration of the foregoing, Parts 1 and 91 of the Federal Aviation Regulations are amended, effective August 3, 1967.

These amendments are made under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421).

Amendment 91-44

Terminal Instrument Procedures (TERPS); Implementation of U.S. Standard

Adopted: October 2, 1967 **Effective: November 18, 1967**

(Published in 32 F.R. 13909, October 6, 1967)

The purpose of these amendments to Parts 1, 91, 97, 121, and 135 of the Federal Aviation Regulations is to implement new techniques and criteria associated with the U.S. Standard for Terminal Instrument Procedures, hereinafter referred to as TERPS. These amendments are based upon a Notice of Proposed Rule Making published in the Federal Register on May 5, 1967 (32 F.R. 6938).

Interested persons were afforded an opportunity to participate in the rule making through submission of written comments. Due consideration has been given to all relevent matter presented.

Comments received in response to the notice were generally in accord with the proposals. As stated in the preamble to the notice, it is anticipated that a period of approximately two years will be required to review and reissue all instrument approach procedures under the new criteria. Accordingly, comments were solicited as to whether two sets of rules should be prescribed, one directed to the new procedures, the other directed to the old procedures. As an alternative method, the notice proposed to immediately convert each present ceiling value in the instrument approach procedures to a minimum descent altitude or decision height, as appropriate, and replace the present rules with the new rules governing minimum descent altitude (MDA), or decision height (DH). Comments received in response to this proposal indicated a strong preference for immediate conversion of ceiling values to MDA and DH. Accordingly, provision has been made in section 91.116(b) for converting landing ceiling minimums, prescribed in procedures issued under the old criteria, to MDA or DH by summing the ceiling minimum with the field elevation. The visibility minimum will be the applicable landing minimum, and descent will be limited by the minimum descent altitude (MDA) or decision height (DH), obtained by summing the prescribed ceiling minimum and published field elevation.

Where takeoff minimums are presently prescribed in the procedure in terms of ceiling and visibility, the ceiling minimum, as well as the visibility minimum, will continue in effect as a limitation for takeoff pending review and reissuance of the procedure under the revised criteria. When reissued under TERPS, ceiling minimums will no longer be prescribed for takeoff, except for those runways where a ceiling minimum is required to enable the pilot to see and avoid obstructions.

Although not contained in the notice, one comment suggested clarification of the term "lowest initial approach altitude for the airport" as used in sections 91.23 and 91.83(b) and (c), and as applicable in flight planning and designation of an alternate airport. Under the old criteria the minimum enroute altitude (MEA) served as the initial approach altitude to the approach facility, unless a lower altitude was specified in the procedure. Under TERPS, the initial approach segment starts at the initial approach fix and ends at the intermediate fix; or, in some cases, no initial approach segment will be specified. In such cases, "initial approach altitude" would not be applicable. Accordingly, the language in sections 91.23 and 91.83(b) has been clarified to read "lowest MEA, or MOCA, or altitude prescribed for the initial approach segment of the instrument approach procedure for that airport." Similar language has been substituted in sections 121.619, 121.621, and 135.107.

Several comments indicated that section 91.116(c) of the proposal could be interpreted to apply civil airport takeoff minimums to aircraft operators other than those operating under Part 121, 129, or 135. As this result was not intended, the language of the paragraph as adopted herein has been changed to make it clear that the minimums apply to aircraft operating under Part 121, 129, or 135.

Some comments pointed out that the language of section 91.117(b), as proposed, which prohibited the "operation" of an aircraft below the MDA or DH, unless certain conditions have been met, would in fact prohibit continuation of a precision approach to the descision height, since some variable altitude loss must be anticipated in making the transition from the approach to the missed approach at decision height. Recognizing this probability, the language of that section has been amended to provide that no person may "continue the approach" below the decision height unless the prescribed conditions are met.

One comment pointed out that ICAO Annex 10 (Specifications for Radio Navigation Aids) lists the localizer, glide slope, and outer marker and middle marker as "components" of the instrument landing system, and that the grouping of visual aids in section 91.117(c) with "components" was at variance with the ICAO document. Accordingly, the section has been revised to recognize this distinction between components and visual aids.

Additionally, in the interest of clarity, the language of section 91.117(c) has been changed to expressly require the adjustment of the straight-in-minimums prescribed in Part 97, when either certain ground components or aids, or the related airborne equipment is inoperative, unusable or not utilized.

Since the determination of the availability or condition of runway centerline marking (RCLM) will depend on weather, time of day, state of deterioration, and other factors, it has been eliminated as an adjustment factor in the tables included in section 91.117(c). Since it is unnecessary to require an adjustment of minimums in all cases in which RCLM is unusable, the requirement for adjustment of minimums for unusable RCLM has been removed from the table. However, where a prescribed minimum is based upon the usability of that aid, the necessary adjustment will be shown in the particular procedure and will apply only when notice is given by a Notice to Airmen or by ATC that the marking is unusable.

A number of symbols and terms have been added, and certain of the definitions for symbols and terms included in section 97.3 have been clarified in accordance with comments and recommendations received: "initial approach" has been defined as the approach segment between the initial approach fix and the intermediate fix; "initial approach altitude" has been expanded to indicate that more than one altitude may be prescribed in high altitude procedures; the terms "circle-to-land" and "straight-in landing" have been substituted for "circling approach" and "straight-in approach and landing in the definitions for "C" and "S" to avoid any confusion with terminology used by ATC for other clearances; the definition for the term "MSA" has been retained as proposed and the definitions for "minimum sector altitudes" and "minimum safe altitudes" as they now appear in the TERPS handbook, will be changed to conform with this definition; the definition for "NOPT" has been broadened to indicate that no procedure turn is required and that the altitude prescribed with the symbol will be applicable only when a procedure turn is not executed; the definition for "shuttle" has been expanded to indicate that it is a racetrack-type pattern and that the 2-minute time limit applies to the legs of the pattern.

A new Subpart C has been added to Part 97. Procedures now prescribed have been issued under Subpart B. New procedures issued under TERPS, or procedures which will be reviewed and reissued under TERPS, will be issued under Subpart C. When conversion of all procedures has been completed, Part 97 will be amended to delete one subpart.

The term "standard", as it was used in the notice in connection with the abbreviations for ALS, RCLS, SALS, and TDZL in section 1.2, has been deleted, since this is primarily a factor of concern only in the development of the procedure and in establishment of the MDA or DH and visibility minimums.

Certain additional abbreviations used in Part 91 (LOC, GS, IM, LDA, ASR, NDB (ADF), LFR) have been defined in section 1.2.

The proposed amendment to Part 97 which provided for deletion of the words "ceiling minimum" wherever it appeared as a limitation on the making of an instrument approach has been deleted, and the provision for summing the ceiling minimum and field elevation to obtain the MDA or DH has been substituted in section 91.116(b).

Appropriate sections of Parts 121 and 135 have been amended to reflect the reliance on visibility, MDA, and DH, as controlling factors for approach and landing, and to clarify the term "minimum initial approach altitude" as it applies in designation of an alternate airport. The term "weather conditions" has been substituted for "ceiling and ground visibility" in certain sections to accommodate those situations in which ceiling alone is controlling, or ceiling and visibility are controlling, depending on the procedure being used or the terms of the applicable operations specifications.

TERPS supersedes the U.S. Manual of Criteria for Standard Instrument Approach Procedures (1956), and contains criteria for development of terminal procedures which reflect revised concepts and procedures made possible by the improvements mentioned above. TERPS was issued in September 1966, as FAA Handbook 8260.3, and has been adopted by the Departments of Army, Navy, Air Force, and the U.S. Coast Guard. Copies may be obtained from the Department of Transportation, Federal Aviation Administration, Distribution Unit, TAD-484.3, 800 Independence Avenue, S.W., Washington, D.C. 20590. Copies are also available for examination at any Regional or Area office of the FAA. Periodic revision and further development of the criteria is contemplated, and comments or recommendations are invited from interested persons at any time.

In consideration of the foregoing, Parts 1, 91, 97, 121, and 135* of the Federal Aviation Regulations are amended, effective November 18, 1967.

These amendments are made under the authority of §§ 307, 313, and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1421).

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*Parts 1, 97, 121, and 135 are published separately.

Amendment 91-45

Flight Limitations in the Proximity of Space Flight Recovery Operations

Adopted: October 11, 1967 **Effective: October 17, 1967**

(Published in 32 F.R. 14312, October 17, 1967)

The purpose of this regulation is to prohibit the operation of nonparticipating aircraft of United States registry, and aircraft piloted by any person operating under an FAA pilot certificate, in space flight recovery areas specified in a Notice to Airmen (NOTAM).

The flight phase of the Apollo space program is scheduled to commence during the month of October, 1967. Thereafter, for an indefinite period of time, both manned and unmanned flights associated with this and other space activities will take place. In connection with these flights, the landing areas will be selected by the National Aeronautics and Space Administration or the Department of Defense.

On March 18, 1965, the Administrator of the FAA issued Special Federal Aviation Regulation No. 16, (31 F.R. 3706), that prohibited the flight of nonparticipating aircraft in the recovery areas of the Gemini series of operations. The National Aeronautics and Space Administration has stated that the future unmanned and manned space operations commencing with the Apollo series will involve the same procedures utilized in the Gemini series and that such operations require the same protection that has been provided for the Gemini project.

In these space recovery operations the possibility exists that nonparticipating aircraft may be used to obtain on-site films and video tapes of manned and unmanned spacecraft landing and recovery activities. Since the recovery activities involve ships, helicopters, airplanes and pararescue personnel all operating in comparatively small areas and requiring immediate action, the risks associated with these operations would be increased unnecessarily, and delay or confusion created in the assigned operational phase if nonparticipating aircraft were permitted to be present in the critical area. Additionally, the presence of such aircraft would contribute an unnecessary source of electromagnetic interference.

IFR traffic will be segregated from the recovery areas. Air traffic control will maintain close communication with the Mission Director so the IFR traffic may be rerouted with little or no delay.

Since the precise time and duration of these space flights are contingent upon many variable factors, the times when the limitations on nonparticipating aircraft will be effective cannot now be ascertained. However, these will be stated well in advance by the publication of a Notice to Airmen (NOTAM) for domestic and international distribution. The NOTAMs will be available at appropriate air traffic facilities and will be readily identifiable. They will define the recovery areas and specify the period of time during which the prohibition of unauthorized flight in the pertinent areas is effective.

Even though the restrictions may be effective during the entire space flight to insure that the planned recovery area is always available should an emergency recovery operation become necessary, provision is being made so that pilots may request ATC to obtain permission from an appropriate authority to cross a recovery area at a specific time and place.

Except for minor and clarifying matters, this rule is the same as Special Federal Aviation Regulation No. 16. However, since the series of space flights, commencing with the Apollo Program, will continue for an indefinite period of time, the rule as adopted herein has been incorporated into the permanent rules of Part 91 of the Federal Aviation Regulations.

Since this regulation involves no substantive change from the procedures prescribed in Special Federal Aviation Regulation No. 16, and in the interest of safety and the national interest must be made effective for operations during the month of October, I find that notice and public procedure hereon are impracticable and that this amendment may become effective upon publication in the Federal Register.

In consideration of the foregoing, Chapter 1 of Title 14 of the Code of Federal Regulations is amended, effective October 17, 1967.

This amendment is issued under the authority of Sections 307 and 601(6) of the Federal Aviation Act of 1958 as amended (49 U.S.C. 1348 and 1421).

Amendment 91–46

Noise Abatement Rules

Adopted: October 30, 1967 **Effective: December 4, 1967**

(Published in 32 F.R. 15422, November 4, 1967)

The purpose of this amendment is to include all large and all turbine-powered airplanes within the class of aircraft to which the noise abatement rules apply, to omit the written report required from pilots by § 91.87(g), and to make minor editorial changes clarifying the intent of these rules.

The substance of this amendment was published as a notice of proposed rule making in the Federal Register on March 29, 1967, (32 F.R. 5559) and circulated as Notice No. 67–10. Many comments were received in response to the Notice. Generally, the comments were favorable and recommended adoption of the proposed amendments, frequently with minor changes or additional suggestions. Due consideration was given to all comments received.

A number of comments pointed out that there are several small turbo-prop airplanes that make less noise than reciprocating-engine airplanes of comparable size. These comments objected to classifying airplanes on the basis of a design factor that may not necessarily be associated with the problem. While it is true that some light turbo-prop airplanes produce less noise than reciprocating-engine airplanes of a comparable size, studies have indicated that, generally, reciprocating-engine airplanes are less objectionable from a noise standpoint than turbine-powered airplanes. It would be impractical to specify, by regulation, which airplanes within the light turbine-powered category should comply with noise abatement regulations, and which should be excluded. Since application of this rule to all turbine-powered airplanes would not impose an undue burden on light turbo-prop airplanes, and since the proposed application would not compromise aviation safety, it is determined that the rule should apply to all large, and all turbine-powered airplanes.

A number of commentators, and particularly the Aircraft Owners and Pilots Association, questioned the safety inherent in a requirement to have small reciprocating-engine airplanes, including those piloted by relatively inexperienced non-instrument pilots, follow the ILS glide slope when approaching to land on an ILS runway. The ILS glide slope approach is an instrument approach procedure which a VFR pilot may not be competent to execute. It was suggested that requiring these pilots to divert their attention to instruments inside the cockpit, when their full attention should be concentrated outside the cockpit to avoid other traffic, would increase the collision hazard in the vicinity of airports and would contribute little to the noise abatement program. It was recommended that this provision be limited to large airplanes and turbine-powered airplanes. There is merit in this suggestion and the amendment as adopted herein has been modified accordingly.

The Department of the Air Force commented that it uses two traffic pattern altitudes separating conventional and turbine-powered aircraft by 500 feet. It was suggested that combining the traffic pattern altitudes would cause an unsafe mixture of fast and slow aircraft, and that the climb provision would expose aircraft on over-head approaches to departing aircraft climbing rapidly to 1,500 feet. It was requested that some latitude be allowed in the establishment of traffic patterns. These problems are primarily applicable to military airports and it would be impractical to design the general rule to accommodate these exceptional cases. Moreover, all necessary latitude can be provided through an ATC authorization. Therefore, it is determined that a change in the proposed rules is not required to satisfy the military requirements.

As proposed in the Notice, § 91.87(f)(2) prescribed certain climb requirements applicable "unless otherwise required by noise abatement departure procedures . . ." Since many departure procedures are not related to noise abatement, and since the present language of § 91.87(f)(2) refers to "departure procedures," no purpose is served by the change of language and the phrase as it presently appears in the Part is retained.

The Airport Operators Council International opposed the proposed rescission of the requirement for a written pilot report when a pilot uses a runway other than the assigned preferential runway, feeling that no portion of the preferential runway system procedures should be relaxed. However, rescission of the reporting requirement was generally supported by other comments, and, for the reasons stated in the Notice, § 91.87(g) is amended accordingly. In addition, editorial changes have been made in the section to more clearly identify this runway use provision as a noise abatement measure.

In consideration of the foregoing, paragraphs (d), (f)(2), and (g) of § 91.87 of the Federal Aviation Regulations are amended, effective December 4, 1967.

These amendments are made under the authority of Sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354).

Amendment 91-47

Aircraft Speed

Adopted: November 7, 1967 Effective: December 15, 1967

(Published in 32 F.R. 15708, November 15, 1967)

The purpose of this amendment is to prescribe a maximum permissible indicated airspeed of 250 knots for all aircraft operating below 10,000 feet mean sea level (MSL).

The substance of this amendment was published as a Notice of Proposed Rule Making in the Federal Register on September 2, 1967, (32 F.R. 12724) and circulated as Notice 67-30. Many comments were received in response to the Notice. Generally, the comments were favorable and recommended adoption of the amendment as proposed.

The Air Line Pilots Association (ALPA) and the Air Transport Association (ATA), while recognizing the merit of speed control in a see and avoid environment, question whether the proposed rule will make a significant contribution to safety. These comments generally favored an increase in positive air traffic control services and reduced reliance on the see and avoid concept. They also encouraged increased efforts in the development of a feasible collision warning system. In addition, ATA urged that the speed limits, if adopted, be applied only below 5,000 feet MSL or 5,000 feet above the surface, whichever is higher.

The agency is engaged in continuing efforts to develop a workable collision warning system, and to improve the capability of air traffic control to provide additional separation service. These objectives will be realized as rapidly as technological and budgetary limitations will permit. However, air safety consideration cannot await future developments. Speed controls will provide an additional level of safety needed now. The 10,000-foot maximum level for applicability of the rule was selected as a level which includes nearly all Visual Flight Rules traffic and approximately half of the Instrument Flight Rules traffic. Dropping the level of applicability to 5,000 feet would seriously weaken the rule since nearly half of the traffic in the lower airspace strata would be exposed to aircraft operating at unlimited airspeeds.

Concern regarding the inconvenience to flight test activities was expressed in several comments received from aircraft manufacturers who expressed the view that more specific provision for flight test activities should be included in the rule itself. The agency does not consider it appropriate to include specific regulation of these activities in the body of the Federal Aviation Regulations since flight test activities will vary in the multiple and diverse situations involved. Each flight test activity would more properly be a matter for individual consideration by the Administrator. The rule adopted herein has been modified to require compliance with the speed limit "unless otherwise authorized by the Administrator." All operators having a need to flight test aircraft at speeds in excess of those prescribed by the regulation should contact the appropriate Federal Aviation Administration (FAA) Area Office as soon as practicable so that suitable authorization may be issued.

The comments to Notice 67-39 also contained several recommendations regarding the development of climb and descent corridors for high performance aircraft operations at major terminals. This concept, now in use at many military bases, is being studied and will be made the subject of a future regulatory proposal.

Various alternative methods of providing the extra margin of safety needed in today's airspace operations were suggested in the comments received. These suggestions generally involved programs already in progress, such as "develop a low-cost transponder for general aviation aircraft"; "provide a more efficient low-altitude radar system"; "encourage development of a low-cost proximity warning device," etc. Efforts in these and other areas, of course, will continue since it is realized that speed control is only a partial answer to the problem of air safety.

The economic impact which this regulation will have on operators of high speed aircraft was given detailed consideration during the development of Notice 67-39. The agency feels that the safety factors involved far outweigh the economic considerations and that it is in the public interest that the rule be adopted as proposed.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective December 15, 1967.

These amendments are made under the authority of Sections 307 and 313 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354).

Amendment 91-48

Special Rules for Foreign Civil Aircraft in VFR Flight Operations

Adopted: November 24, 1967 Effective: November 30, 1967

(Published in 32 F.R. 16392, November 30, 1967)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to remove the requirement of § 91.43(b) that no person may operate a foreign civil aircraft in the United States in VFR flight unless a VFR fligt plan has been filed with an FAA communications station.

This amendment was proposed in Notice 67-28 and published in the Federal Register on July 13, 1967 (32 F.R. 10310). Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all matters presented. As the comments received on the Notice were all favorable and support the proposal, the FAA has determined to issue the amendment for the reasons stated in the Notice. By providing relief from compliance with a regulation deemed unnecessary, good cause exists for making this amendment effective in less than 30 days.

In consideration of the foregoing, § 91.43(b) of the Federal Aviation Regulations is revoked, effective November 30, 1967.

This amendment is made under the authority of sections 307(a), 313(a), and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), and 1421).

Amendment 91–49

VOR Equipment Checks Outside the United States

Adopted: November 24, 1967 Effective: December 31, 1967

(Published in 32 F.R. 16483, December 1, 1967)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to provide for VOR equipment checks under § 91.25 outside the United States using test signals and checkpoints that have not been approved or designated by the Administrator.

This amendment was proposed in Notice of Proposed Rule Making 67–24 published in the Federal Register on July 6, 1967 (32 F.R. 9840). All of the comments received were in favor of the proposal and, therefore, for the reasons set forth in Notice 67–24, the proposed rule is adopted herein without change.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective December 31, 1967.

This amendment is issued under the authority of sections 307, 313(a), and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), and 1421).

Amendment 91–50

Priority Handling Reports

Adopted: January 5, 1968 Effective: February 11, 1968

(Published in 33 F.R. 452, January 12, 1968)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to eliminate the mandatory report from a pilot who is given priority by Air Traffic Control in an emergency. A report will now be required only if requested by ATC.

FAR 91.75(d) presently requires that the pilot must submit a detailed report to the nearest FAA Regional Office within 48 hours when, in an emergency, he has been given a priority by ATC.

The requirement for submitting this report was inserted into the air traffic rules in 1947 to minimize the practice of a pilot declaring an emergency in order to receive preferential handling by ATC. At this time turbo-jet aircraft were being introduced into the air traffic control system and pilots of those aircraft often declared emergencies in order to obtain priorities.

Since 1947, various factors have changed. Advancements in turbojet operational capability (especially fuel management), improved pilot familiarization, and improved procedures for handling these aircraft have made priority emergencies virtually nonexistent.

On August 23, 1966, the United States Air Force requested an exemption from § 91.75(d) citing as a primary reason the fact that, in many instances, ATC may grant a pilot priority and not inform the pilot. This regulation requires a pilot to file a report whether or not he may be aware that he has received priority handling. Therefore, it appears that the basis for the Air Force request is applicable to other pilots also. Since the need for the regulation has lessened proportionately with the decrease in priority emergencies, it now appears desirable to require priority reports only upon request of the ATC facility involved. This would reflect the diminishing basis for the requirement and avoid the incongruity of automatically requiring a report from a pilot receiving priority handling who may not be aware of the service received.

On August 10, 1967, a Notice of Proposed Rule Making was issued which proposed to amend FAR 91.75(d) as indicated above. Interested persons were afforded an opportunity to participate in the proposed rule making through the submission of comments. Twelve comments were received in response to the Notice. All were favorable.

This amendment is made under the authority of Sections 307 and 313 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354).

In consideration of the foregoing, paragraph (d) of § 91.75 is amended effective February 11, 1968.

Amendment 91-51

Basic VFR Weather Minimums

Adopted: February 8, 1968 Effective: March 16, 1968

(Published in 33 F.R. 2992, February 15, 1968)

The purpose of this amendment is to prescribe revised weather minimums for Visual Flight Rule (VFR) operations more than 1,200 feet above the surface and at or above 10,000 feet mean sea level (MSL).

The substance of this amendment was published as a Notice of Proposed Rule Making in the Federal Register on October 5, 1967 (32 F.R. 13871) and circulated as Notice No. 67-43. Public comments received in response to the Notice were generally favorable, and, for the most part, recommended adoption of the revised weather minimums as proposed. Due consideration was given to all comments received.

The Aircraft Owners and Pilots Association recommended that the visibility requirement for VFR be increased to five miles only for those aircraft operating above 10,000 feet MSL at speeds in excess of 250 knots. The National Pilots Association also recommended that the VFR minimums be related to the operating speed of the aircraft concerned. Although a provision of this type would provide an improved "see and avoid" capability between two VFR aircraft in marginal visibility conditions (3 to 5 miles), it would not provide this capability between a VFR aircraft operating within the speed limit and an Instrument Flight Rules (IFR) aircraft operating without a speed limit. With the recent adoption of the 250 knot speed limit below 10,000 feet (Amendment 91-47, published in 32 F.R. 15708 on November 15, 1967) an increase in high-performance operations above 10,000 feet can be expected. It is important to ensure that this traffic will not encounter VFR traffic when operating IFR at a high airspeed in marginal weather conditions.

The Air Transport Association, the Air Line Pilots Association, the United States Air Force, and several other commentators recommended that the increased weather minimums be applied in all controlled airspace rather than above 10,000 feet only. Such application of the revised minimums would be beyond the scope of the Notice and cannot be adopted at this time.

Several commentators recommended that the language of the final rule be simplified so as to make the rule more easily understandable. The final rule, as adopted herein, has been modified accordingly. In order to facilitate understanding of the basic VFR weather minimums, they have been listed in table form according to the altitudes at which they apply.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended effective March 16, 1968.

These amendments are made under the authority of sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354).

Amendment 91–52

Elimination of VFR Operations Under Less Than Basic VFR Weather Minimums

Adopted: February 26, 1968 **Effective: April 30, 1968**

(Published in 33 F.R. 4096, March 2, 1968)

The purpose of these amendments to Parts 91, 93, and 121 of the Federal Aviation Regulations is to eliminate the VFR operation of fixed-wing aircraft in certain control zones, under less than basic VFR weather minimums.

These amendments are based on a Notice of Proposed Rule Making issued as Notice 67–45 and published in the Federal Register on October 17, 1967, (32 F.R. 14334). Interested persons were afforded an opportunity to participate in the rule making through submission of written comments. Due consideration has been given to all relevant matter presented.

A vast number of comments were received in response to the Notice representing a very broad spectrum of airspace users, including the aviation industry associations, the Military Departments, local pilot groups, numerous State Aviation Departments, fixed base operators, the California State Legislature, the Attorney General for the State of South Dakota, pipe line and power line patrol operators. The comments were almost uniformly in opposition to the proposal as stated in the Notice. A substantial number of comments recognized that local conditions, such as high traffic density and inadequate radar coverage, could produce an environment in which operation under VFR in conditions of low visibility may become hazardous. However, the complete elimination of Special VFR was uniformly considered to be a drastic and unjustifiable action.

Discussion of individual and association comments would be impracticable because of the large number received. However, comments typically emphasized that many users rely on obtaining a Special VFR clearance to operate in control zones which are adjacent to uncontrolled airspace. They maintained that this type of operation is a convenient and efficient way to fly during periods of reduced visibility, and is compatible with simultaneous IFR operations in most circumstances. Additionally, comments from many business related aviation activities stated that they are dependent on this type of operation, and they would suffer a severe economic penalty if Special VFR were eliminated. The majority of the comments also recognized that Special VFR operations should be prohibited or limited at certain high density traffic locations. As a result of further study, taking into consideration such factors as availability of radar, proximity of other airports, and frequency of instrument weather conditions, the FAA has determined that Special VFR operations will be eliminated at certain locations and ATC procedures modified to ensure safe and efficient use of the airspace where Special VFR is permitted. Based upon changing conditions involving safety considerations additional airports may be designated in the future.

The FAA's objective is to develop a system of airspace utilization and air traffic control and navigation which permits the movement of people and goods in air commerce at optimum levels of safety and efficiency, and serve the national security needs of the country. This requires that some portions of the airspace be subjected to higher orders of regulation to provide the optimum degree of safety for the majority of the public, aircrews, passengers, and persons and property on the ground that may be affected by aircraft operation. Because of the ever increasing number of aircraft operating in the vicinity of airports serving large population centers, it has become necessary to impose restrictions and establish priorities with respect to the airspace and the services associated with it. Based on the requirement for the safe and efficient use of the airspace, the FAA has decided to take regulatory action which eliminates Special VFR operations at specified control zones based on IFR activity.

Special VFR operations will be permitted at all other control zones. However, procedures will be established to give IFR traffic priority over Special VFR at those locations at which there are a traffic control tower and airport surveillance radar; while at other locations Special VFR flights will be permitted only when IFR operations are not being conducted. Special consideration will be given to military operations where appropriate.

Several petitions were filed requesting a public hearing. It was determined that these petitions should be denied because the comments generally objected to the proposal on substantially similar grounds. Due to the magnitude of the number of comments and the uniformity of objections stated, the FAA is aware of the basic factors and the consensus of user opinion, so that it is improbable that any additional information would be obtained from a public hearing. In fact, this rule in the main now conforms to the recommendations proposed by those requesting a public hearing; accordingly it would serve no useful purpose to convene a public hearing on this matter.

In consideration of the foregoing, Parts 91, 93, and 121 of the Federal Aviation Regulations are amended, effective April 30, 1968.

This amendment is made under the authority of Sections 307, 313(a), 601, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, 1421, and 1424).

Amendment 91-53

Special Airworthiness Certificates

Adopted: April 30, 1968 **Effective: June 6, 1968**

(Published in 33 F.R. 6856, May 7, 1968)

The purpose of these amendments is to provide for a classification of special airworthiness certificates that includes restricted, limited, provisional, and experimental certificates, and special flight permits; to expand the purposes for which experimental certificates may be issued to include market surveys, sales demonstrations and customer crew training operations; and to expand the purposes for which special flight permits may be issued. The general operating and flight rules are also amended to include operating limitations applicable to aircraft having experimental certificates.

These amendments are based on a Notice of Proposed Rule Making (31 F.R. 9131, July 2, 1966), circulated as Notice No. 66-24, dated June 27, 1966.

Numerous comments were received in response to Notice 66-24. Based upon these comments and upon further consideration by the FAA, a number of substantive changes have been made to the proposed rules. The comments received and the changes in the proposal resulting therefrom are discussed below.

In addition to the proposed regulations concerning special airworthiness certificates, Notice 66-24 contained detailed proposals setting forth comprehensive airworthiness standards for amateur-built aircraft. However, the comments received in response to the amateur-built aircraft rules were consistently opposed to the proposal. In the light of these comments and after further study by the FAA, it is apparent that detailed substantive changes to the proposed standards will be necessary in order to provide meaningful airworthiness standards for amateur-built aircraft. Therefore, the FAA intends to issue a new Notice of Proposed Rule Making proposing airworthiness standards for amateur-built aircraft taking into consideration the comments received on Notice 66-24. For this reason, those portions of Notice 66-24 dealing with the issuance of special type and airworthiness certificates for amateur-built aircraft and proposing new airworthiness standards for such aircraft are withdrawn.

The proposal would also have changed the present requirements concerning provisional airworthiness certificates to delete the provisions covering the issuance of Class I provisional type and airworthiness certificates. At the same time, it was proposed to permit market surveys and sales demonstrations under an experimental certificate. Comments received concerning this proposal indicate, however, that there are situations in which manufacturers would not want to conduct such operations in aircraft having experimental certificates. The comments suggest that the requirements for Class I provisional certificates should be retained and the manufacturer permitted to use either an experimentally certificated aircraft or a Class I provisionally certificated aircraft in conducting these operations. The FAA sees merit in this suggestion and the proposal has been changed accordingly. The comments also pointed out that customer crew training is permitted under a Class I provisional certificate and that this should also be permitted under an experimental certificate. The FAA intended to extend to manufacturers the same privileges under the experimental certificate as they have under the Class I provisional certificate. This privilege has been extended to manufacturers through numerous exemptions without any adverse effect on safety. The proposal has therefore, been changed to expressly permit customer crew training by manufacturers under an experimental certificate.

As previously indicated, one of the objectives of Notice 66-24 was to provide for the classification of airworthiness certificates as either standard or special. In this connection, detailed amendments were proposed to the airworthiness certification provisions in Part 21 primarily for the purpose of classifying restricted and limited category airworthiness certificates, provisional and experimental airworthiness certificates and special flight permits, as special airworthiness certificates. The detailed changes, particularly with respect to format, proposed in Notice 66-24 to accommodate the new classification were considered appropriate in view of the extensive revisions to the regulations that were being made to implement the proposed new certification standards for amateur-built aircraft and to accommodate the proposed new provisional certification requirements. However, in view of the decision concerning these two matters as referred to above, and in the light of the numerous comments received in response to this Notice, the FAA does not consider that an amendment of the regulations to the extent proposed is necessary in order to accomplish the objective of the proposal with respect to special airworthiness certificates. In this connection, section 21.175 covering the classification of airworthiness certificates has been amended merely to indicate that airworthiness certificates are classified as either standard or special and that special airworthiness certificates include airworthiness certificates issued for restricted, limited and provisionally certificated aircraft, experimental certificates and special flight permits. Thus, contrary to the proposal, the final rules do not contain amendments to the sections of Subpart H of Part 21 concerning the issue of airworthiness certificates for normal, utility, acrobatic and transport category aircraft: the issue of airworthiness certificates for restricted and limited category aircraft and the issue of multiple airworthiness certificates. Moreover, no changes are being made to the provisional airworthiness certification requirements. The only changes being made concern the issue of experimental certificates and special flight permits.

In Notice 66-24, the FAA proposed to change the requirement in § 21.179 to provide that experimental certificates and special flight permits are not transferred with an aircraft. Several comments concerning this proposal pointed out the disadvantages in making such a restriction applicable generally to all experimentally certificated aircraft. The comments were particularly concerned with amateur-built aircraft. The proposed change was initiated in the belief that because of the operations covered by experimental certificates and special flight permits and the aircraft involved, each owner of the aircraft should identify his need for the certificate and show that the aircraft can be operated safely. However, it has subsequently been determined that the safety of operations in aircraft having experimental certificates and special flight permits is adequately covered by the limitations imposed under the current regulations, including the limitation on the duration of such certificates and permits and that the proposed restriction is unnecessary in the interest of safety.

In order to consolidate the provisions governing the duration of airworthiness certificates, the duration provisions applicable to experimental certificates presently set forth in § 21.195 have been incorporated into § 21.181. Finally, the purposes for which experimental certificates are issued as set forth in § 21.191, have been expanded consistent with the proposal to permit market surveys, sales demonstrations and customer crew training as well as training of the applicant's flight crews to be conducted in experimentally certificated aircraft. However, while the proposal would have required the applicant for an experimental certificate for an aircraft to be used in market surveys, sales demonstrations and customer crew training operations to, among other things, show that the aircraft had been flown for at least 50 hours, in response to comments received the proposal has been changed to require that the aircraft need have been flown for only 5 hours if it is a type certificated aircraft which has been modified.

With respect to special flight permits, Notice 66-24 contained a proposal providing for the issue of special airworthiness certificates for those operations currently authorized under special flight permits. In this connection, production flight tests would have been authorized as an experimental purpose under a special airworthiness certificate and the other operations presently covered by special flight permits would have been authorized under a special airworthiness certificate for aircraft involved in ferry flights. Various comments were received concerning this proposal, particularly with respect to the fact that as proposed, production flight testing would have been identified as an experimental operation. This, of course, is not appropriate. Therefore, in the light of these comments and after further consideration, the FAA has determined that these changes are not necessary. However, as proposed, the requirements governing special flight permits now provide for the issuance of special flight permits for the purpose of evacuating aircraft from areas of impending danger and incorporate the proposed changes to the information required to be submitted by the applicant for a special flight permit.

A comment was also received concerning the provision in the Notice prohibiting the carriage of persons or property for compensation or hire in aircraft having a special airworthiness certificate. The comment stated that there is no justification, on the basis of safety, for prohibiting the carriage of property for compensation or hire. As set forth in Notice 66-24, the special airworthiness certificate classification covers restricted and limited category certificates, experimental certificates and special flight permits. In this connection, the Notice did not propose a new requirement but merely restated the current limitation on the carriage of persons or property for compensation or hire applicable to aircraft having such certificates. A general authorization to carry property for compensation or hire on aircraft certificated in the limited or restricted category or on aircraft having experimental certificates and special flight permits would be inconsistent with the limitations set forth in the special purpose for which those certificates may be issued and would require regulatory changes beyond the scope of Notice 66-24.

With reference to airworthiness certificates in general, various comments objected to the proposed requirement that applications for an airworthiness certificate be submitted to the local FAA office. As the comments indicated, the FAA is aware that in some instances the "local" FAA office may not be as accessible to an applicant as the District Office of another Region. Therefore, to prevent unnecessary inconvenience in the submittal of applications, the FAA agrees with one of the comments that applications should be submitted to any FAA office and the rule has been changed accordingly. In addition, in response to comments, the proposal has been revised to take into consideration the current practice of accepting telephone and telegraphic applications for special flight permits in emergency situations.

A proposal to change the requirements of § 45.23 to require that aircraft having special airworthiness certificates display the word "special" near each entrance to the cabin or cockpit was also included in Notice 66-24. However, based on the numerous comments on this proposal and after further consideration, the FAA has determined that the proposed change would not accomplish the objective sought and could create confusion as to the nature of the aircraft. Therefore, § 45.23 remains unchanged and limited, restricted, experimental or provisionally certificated aircraft must still display the words "limited", "restricted", "experimental" or "provisional airworthiness", as the case may be.

In light of the determinations concerning the proposed changes to Part 21, the only amendment to Part 91 now considered necessary is the proposed amendment setting forth operating limitations applicable to aircraft having experimental certificates. These operating limitations are set forth in new § 91.42. In this connnection, several comments were received objecting to the area restrictions proposed for aircraft having experimental certificates. The comments pointed out that the FAA recently amended Part 91 to delete the requirements concerning "approved" flight test areas and that there appears to be no reason for requiring operation in "approved" areas under the proposed rule. The operating limitations set forth herein are applicable to all aircraft having experimental certificates and not just aircraft involved in flight tests. The FAA considers that all aircraft having experimental certificates must, in the interest of safety, be operated in an area assigned by the Administrator until it is shown that the aircraft is controllable throughout its normal range of speeds and throughout all the maneuvers to be executed and it is shown that the aircraft has no hazardous operating characteristics or design features. After the required showing has been made, if the aircraft is to be flight tested it would be governed by the flight test requirement of § 91.93 or if the aircraft is to be used for any of the other purposes for which an aircraft having an experimental certificate may be used, it would be governed by any area limitations particularly related to that purpose imposed by the FAA. The area restriction set forth herein has for a number of years been included in each experimental certificate issued by the FAA.

With reference to experimental certificates and special flight permits, one of the comments pointed out that the Notice made no provision for the renewal of expired certificates. The commentator recommended that the regulations either be changed to provide that experimental certificates remain in effect as long as maintenance is performed in accordance with Parts 43 and 91 of the Federal Aviation Regulations or to specify requirements applicable to the renewal of such certificates. In this connection, it was recommended that an experimental certificate should be renewed when the applicant has submitted (1) a statement that the aircraft is to be operated for one or more of the experimental purposes and, (2) upon inspection of the aircraft by the Administrator, any other information necessary for the purpose of prescribing operating limitations. In most cases, Part 43 of the Federal Aviation Regulations is not applicable to aircraft having experimental certificates and this is pointed out in the applicability section of that Part. Therefore, the duration of experimental certificates cannot be predicated on compliance with the maintenance requirements of Part 43. However, since under the current regulations, experimental certificates remain in effect for no longer than one year, there appears to be merit in the recommendation for regulations covering the renewal of such certificates and the FAA plans to give the commentators recommendation further consideration with a view to appropriate regulatory action.

In Notice 66-24, it was proposed to change the current regulations by restricting the issuance of experimental certificates for aircraft to be used for air racing to those air races which are officially sanctioned. However, in the light of the comments on this proposal and after further consideration, the FAA does not consider that the proposed requirement is necessary in the interest of safety. Any participant in an air race must comply with the air traffic and general operating rules set forth in Part 91 of the FARs regardless of whether that air race is sanctioned by the organizations referred to in the Notice. Moreover, the FAA is not aware that operations conducted under the current requirements have had any adverse effect on safety. For this reason the proposed restriction has not been adopted.

A number of comments were received concerning the absolute prohibition on the operation of aircraft having experimental certificates with respect to populated areas and congested airways. The comments pointed out that the proposed operating limitations would severely curtail current operations with aircraft having experimental certificates since the base of operations may be an airport in a populated area used for private and commercial operations. The FAA considers that the comment has merit and that an appropriate revision of the proposed requirement may be made without any adverse effect on safety. In this connection, the proposal has been changed to prohibit aircraft having experimental certificates from being operated over densely populated areas and in congested airways, except for takeoffs and landings conducted in accordance with special operating limitations issued by the Administrator. This provides the necessary relief and parallels the limitation on the operation of restricted category aircraft currently set forth in the regulations. In addition, the proposed operating limitations have been revised to make it clear that notice of the experimental nature of the aircraft is required only when operating into and out of airports with operating control towers. While there were comments objecting to this limitation, the FAA believes that the traffic controller should be made aware of the experimental status of an aircraft so that special instructions with regard to the usage of runways or approach patterns can be applied if necessary in the interest of safety.

Interested persons have been afforded an opportunity to participate in the making of these amendments. All relevant material submitted has been fully considered.

In consideration of the foregoing, Parts 21* and 91 of the Federal Aviation Regulations (14 CFR Parts 21 and 91) are amended, effective June 6, 1968.

These amendments are issued under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, and 1423).

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*Part 21 is published separately.

Amendment 91-54

Special Flight Authorization for Foreign Civil Aircraft

Adopted: May 16, 1968 **Effective: July 1, 1968**

(Published in 33 F.R. 7622, May 23, 1968)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to set forth certain of the conditions under which a foreign civil aircraft may be operated in the United States without a currently effective airworthiness certificate.

This amendment is based on a notice of proposed rule making (Notice 67-25) issued on June 30, 1967, and published in the Federal Register on July 7, 1967 (32 F.R. 9987). Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all matter presented.

The comments received were, for the most part, in agreement with the proposal but several specific recommendations for changes in the final rule were made.

The Aircraft Owners and Pilots Association (AOPA) commented on what it believed to be an inconsistency between a statement in the preamble to Notice 67-25 and the actual language of the proposed amendment. AOPA pointed out that among the purposes mentioned in the preamble for which a special flight authorization would be issued was "the operation in the United States of a foreign aircraft that is not in full compliance with the comprehensive and detailed airworthiness code of the country of registry but which is to be operated at an exhibition or air show." AOPA recommended inclusion of an additional subparagraph to § 91.28(b) specifically authorizing "the flight of a foreign civil aircraft which is to be operated at an exhibition or air show." It was the FAA's intent that flights of this kind would be authorized under the general language of subparagraph (6) of § 91.28(b) as proposed in Notice 67-25 which covered "the flight of a foreign civil aircraft for any other purpose specifically authorized for that aircraft by an authorization by the Civil Aeronautics Board." This language would, if adopted, have amounted to a delegation of authority to FAA Regional Directors to issue special flight authorizations to any foreign civil aircraft that had obtained from the Civil Aeronautics Board the necessary authorization for flight in the United States.

Upon reviewing the proposal, in the light of the comments received, the FAA has determined that the delegation to the Regional Directors to issue special flight authorizations should be limited to those categories specifically described in subparagraphs (b)(1) through (b)(5) as contained in Notice 67-25. The FAA believes that since the bulk of the exemptions that have been issued by it in the past fall into these categories, adoption of this rule will obviate the need for future such exemptions, by providing a simplified procedure that will be handled by the Regional Directors. However, the FAA has determined that it is in the interest of safety to continue to require that any requests outside the scope of subparagraphs (1) through (5) be submitted to FAA, Washington Headquarters, as requests for exemptions. Such requests will be handled in the same manner as in the past in accordance with the procedures prescribed in Part 11 of the Federal Aviation Regulations.

The Experimental Aircraft Association of Canada requested the FAA to include as one of the categories for which the Regional Director might issue a special flight authorization, the operation of a Canadian amateur-built aircraft into the United States to attend any event sponsored by the Experimental Aircraft Association. In making this request, the EAA of Canada pointed out that past exemptions granted by the FAA to permit attendance at EAA sponsored events were limited to the annual fly-in at Rockford, Illinois, and further limited flight to flying directly to and returning directly from, such fly-in. EAA of Canada pointed out that there are other EAA events in the U.S. that Canadian members desire to attend. In support of its recommendation EAA of Canada stated: "The safety record of Canadian amateur-built aircraft is very good, and in the several years that Canadian aircraft have been allowed to attend the Rockford Fly-in there have been no problems of any kind." EAA further states that "Canadian amateur-built aircraft are built to standards equivalent to those used in the United States and our Department of Transport has similar inspection procedures as those used by the F.A.A. Our operating restrictions are slightly more restrictive than those used in the United States, and our gross weight and wing loadings are also restricted. As a result, we are sure that our Canadian aircraft are just as safe as those being built and flown in the United States."

The FAA does not agree that blanket authority should be delegated to the Regional Directors to issue special flight authorizations for any EAA sponsored event. The inclusion of such an authorization would amount to rule making addressed to a special group which is not appropriate for inclusion in the general rules promulgated by the FAA. While it is true that the safety record under the past exemptions granted for such flights has been good, the FAA believes that requests for such flights should continue to be handled under the exemption procedure of FAR Part 11. In view of the deletion of subparagraph (b)(6) as discussed above, requests with regard to the annual Rockford Fly-in, as well as to other such events, must in the future, as in the past, be submitted to FAA, Washington Headquarters, in accordance with FAR Part 11.

The Air Line Pilots Association (ALPA) commented that "any new regulation permitting special airworthiness flight authorization must assure that such operations are conducted safely and under specific limitations." ALPA further commented that "Provision must be made to prohibit aircraft without a currently effective airworthiness certificate from co-use of airspace with civil air transport airplanes." The FAA agrees that to assure the safety of other aircraft it is necessary that aircraft operating under a special flight authorization be subject to appropriate limitations. This intent was stated in the preamble to Notice 67-25 and the introductory language of paragraph (b) of § 91.28 has been modified to more clearly state this intent.

The Aerospace Industries Association, while supporting the proposal, commented that it appeared that the procedures in existence under existing exemptions appear to be less complex than those contemplated under the proposal. AIA's comment is prompted by the existence of exemptions granted to certain U.S. manufacturers that amount to blanket authorizations. The FAA does not intend that the type of authorization that AIA is concerned about be handled differently after the adoption of this rule than before. The Regional Directors will have the authority to issue "blanket" special flight authorizations to appropriate applicants for stated purposes such as ferry flights or training flights subject of course to appropriate conditions and limitations.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended effective July 1, 1968.

These amendments are issued under the authority of sections 313(a), 601, 603, and 610(b) of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, 1423, and 1430).

NOTE.—The reporting and/or record-keeping requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

Amendment 91–55

Pilot Vigilance

Adopted: July 17, 1968 **Effective: July 24, 1968**

(Published 33 F.R. 10505, July 24, 1968)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to state more specifically the responsibility of pilots to maintain vigilance so as to see and avoid other aircraft when weather conditions permit.

The purpose of the Air Traffic Rules is, in part, to provide for the prevention of collision between aircraft. Currently, flight can be conducted in the same airspace under either Instrument or Visual Flight Rules; however, air traffic control provides separation only between IFR flights, and arriving and departing flights at airports with operating control towers.

Prior to the recodification of Part 60 of the Civil Air Regulations (CAR) into Part 91 of the Federal Aviation Regulations, the Air Traffic Rules were more specific with respect to pilots' responsibility to maintain a watch for other traffic. CAR 60.30 contained a note stating that the pilot in command has the primary responsibility to maintain vigilance in order to see and avoid other traffic when operating in VFR weather conditions. CAR 60.12 also contained a note stating as an example of a careless or reckless operation, the lack of vigilance by the pilot to see and avoid other traffic.

The need to maintain vigilance for other aircraft is now implied in Sections 91.65 and 91.67 of Part 91, and is an underlying hypothesis in Sections 91.7 and 91.123. It is generally understood by pilots; however, a specific statement of the requirement is considered desirable to emphasize its importance.

Since the addition of this provision makes no substantive change, and is editorial in nature, it is determined that notice and public procedure are unnecessary and this rule may be made effective immediately.

In consideration of the foregoing, effective upon publication in the Federal Register, § 91.67(a) of Part 91 of the Federal Aviation Regulations is amended.

This amendment is made under the authority of Sections 307 and 313 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354).

Amendment 91–56

Issuance of Special Flight Permits with Continuous Authorization to Conduct Ferry Flights

Adopted: August 15, 1968 **Effective: September 21, 1968**

(Published in 33 F.R. 11900, August 22, 1968)

The purpose of these amendments to Parts 21 and 91 of the Federal Aviation Regulations is to provide for issuance by the Administrator of special flight permits with continuing authorization to conduct ferry flights, for specified purposes, to an air carrier or commercial operator of large aircraft certificated under Part 121 or an air carrier engaged in scheduled operations with helicopters certificated under Part 127.

These amendments are based on a Notice of Proposed Rule Making published in the Federal Register on October 25, 1967 (32 F.R. 14775). Interested persons were afforded an opportunity to participate in the rule making through submission of written comments. Due consideration has been given to all relevant matter presented.

Comment received in general supported the proposed amendments, since they afford a savings in time and paper work and contribute to the efficient utilization of equipment.

The Air Line Pilots Association (ALPA) was opposed to the proposed amendments on the grounds that the operation of unairworthy airplanes compromised safety and therefore was not in the public interest. The objection of the ALPA extended to the issuance of individual special flight permits as well as issuance of special flight permits with continuing authorization to conduct ferry flights.

Permitting the flight of aircraft which may not currently meet with all applicable airworthiness requirements for the purpose of accomplishing necessary maintenance or alterations is a practice of long standing, and FAA experience with this practice does not indicate that safety has been compromised. It is the judgment of the FAA that such flights are frequently advantageous and may be safely conducted under carefully selected operating conditions and appropriate restrictions.

The Air Transport Association of America (ATA) expressed general agreement with the proposal and recommended certain changes. It suggested that including the flight permit and continuing authorization, together with conditions and limitations, in the certificate holder's operations specifications would greatly expand their volume, and that requiring those portions of the operation specifications to be carried in the aircraft under § 91.27 would be unnecessarily burdensome. ATA further recommended that scheduled helicopter operators certificated under Part 127 be included as eligible under § 21.197 since they have similar problems and situations requiring the ferry of aircraft for maintenance or alterations. The latter recommendation is viewed as appropriate and § 21.197 has been broadened to apply to Part 127 certificate holders as well as Part 121 certificate holders.

It is not felt that the proposed requirement for carrying applicable sections of the operations specifications aboard the aircraft would be unduly burdensome. The FAA statement of the permit with continuing authorization, together with a listing of general conditions and limitations imposed by the Administrator is expected to be brief, and should normally require no more than the addition of a single page in the operations specifications. More detailed conditions and limitations considered necessary by the permit holder to meet specific contingencies would normally be contained in operations manuals or maintenance manuals, or in the permit holder's communication which directs or authorizes the flight. However, in order to provide for greater flexibility, the requirement has been stated in the alternative in § 91.27, allowing the permit holder to carry either the operations specifications or portions of the air carrier manual required by § 121.133 or § 127.61 containing a restatement of the permit and those conditions and limitations imposed by the Administrator in the operations specifications.

The ATA recommendation that the special flight permit and continuing authorization be stated originally in the air carrier manual required under § 121.133 rather than the operations specifications has not been adopted. While a restatement of the conditions and limitations in operations and maintenance manuals will contribute to a workable arrangement, it is believed the operations specification is the appropriate place for the original statement of the special flight permit with continuing authorization, and for the original listing of general conditions and limitations for flight. The certificate holder, in restating conditions and limitations for flight in the air carrier manual, may find it convenient or necessary to supplement the listing with more detailed statements of procedures and restrictions.

It is anticipated that an advisory circular or internal FAA directive, or both, will be issued to facilitate and standardize issuance of the permits.

In consideration of the foregoing, Parts 21 and 91 of the Federal Aviation Regulations are amended effective September 21, 1968.

These amendments are made under the authority of sections 313(a), 601 and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421 and 1423).

Amendment 91–57

Altitude Alerting System or Device

Adopted: August 22, 1968 Effective: September 28, 1968

(Published in 33 F.R. 12180, August 29, 1968)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to establish a requirement for an altitude alerting system or device in all U.S. registered turbojet civil airplanes.

These amendments are based on a notice of proposed rule making published in the Federal Register on December 20, 1967 (Notice 67–53, 32 F.R. 19190). Interested persons have been afforded an opportunity to participate in the rule making through submission of written comments. Due consideration has been given to all relevant matter presented.

The proposal for an altitude warning device was first issued by the FAA on February 6, 1967 as an advance notice of proposed rule making (Notice 67–2, 32 F.R. 2860) which requested public comment on several specific questions relating to these devices. Based on the comments received, the FAA issued Notice 67–53 containing a proposed rule with specific requirements for such a device. A majority of the comments on Notice 67–53 were in favor of requiring an altitude warning device.

The comments against the proposal are substantially the same as the negative responses to ANPRM 67–2 which have been discussed in Notice 67–53. There the FAA stated that, while some of the points raised had merit, there was sufficient justification to proceed with regulatory action. The latest comments support that determination.

Several individual operators and the Aerospace Industries Association strongly recommended that the rule specify the objective rather than specific parameters and other detailed requirements. This group stated that certain sophisticated systems and devices that will have altitude alerting capability as well as other desirable features are in an advanced stage of development. Some operators are now committed to install this equipment in connection with modernization programs. Assuming these systems will in fact accomplish the objective, the FAA does not wish to inhibit or restrict their development by overly specific requirements or insufficient lead time.

Consequently, the rule will allow the industry to accomplish the altitude alerting objective by any appropriate system or device. Safety will not be adversely affected by eliminating some of the detailed requirements of the proposed rule and may well be enhanced by encouraging the earlier development of systems that will include additional safety features. In addition, the effective date has been extended to 30 months after adoption in order to provide time for development of these more sophisticated systems. However, this is not to suggest that a more sophisticated system or device will be necessary to meet the purpose of this amendment. A device which will provide the required indications will suffice.

Some operators expressed the fear that the proposed amendment would require the altitude alerting system or device to be used in connection with terminal letdown and instrument approach procedures and thus preclude reliance on radio altimeters or other devices which are capable of more precise obstacle clearance and ground avoidance information. This is a misconception that probably resulted from a lack of clarity in the notices as to the primary purpose of the proposed altitude alerting requirement. The revised language of the amendment has been clarified in this respect by using the term "system or device" which will permit the use of either one device or a system of more than one device. There was some objection to the phrase "altitude warning" due to its emergency connotation. Therefore the term "altitude alerting" is used since this is more appropriate to the purpose of this amendment.

There was considerable opposition to the proposal which permits a flight to be continued only if a failure or malfunction occurs after the airplane has taken off. The FAA has determined that the language would in fact create an unreasonable economic burden which is not justified in the interests of safety and the rule is revised accordingly.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective September 28, 1968, by adding a new § 91.51.

This amendment is issued under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421).

Amendment 91–58

Flight Equipment Requirements, and Chief Instructor Experience Requirements

Adopted: September 4, 1968 Effective: September 11, 1968

(Published in 33 F.R. 12825, September 11, 1968)

The purpose of these amendments to Parts 91 and 141 of the Federal Aviation Regulations is to: (1) clarify Part 91, and conform § 141.55(b) with its predecessor § 50.12(c) of the Civil Air Regulations, in connection with flight instruction, and thereby allow the use of an airplane having a restricted category airworthiness certificate, appropriate for the flight instruction given, to be used in a pilot training course on agricultural aircraft operations; and (2) require a chief flight instructor for a commercial or flight instructor flying school to have an instrument rating on only his commercial pilot certificate, and not necessarily on his flight instructor certificate.

Amendment 6 to Part 141, effective December 13, 1967, provided for approval of pilot training courses, that were not previously included in that part. Among these courses is one given to provide instruction in the proficiency required of an applicant for an agricultural aircraft operator certificate or his designated chief supervisor. However, § 141.55(b) has required each airplane used for flight instruction of students enrolled in a flying course to be certificated under Part 23 or 25 of the Federal Aviation Regulations, thus excluding the use of restricted category airplanes for special purpose operations (including agricultural) certificated under Part 21.

These amendments conform § 141.55(b) with its predecessor § 50.12(c) of the Civil Air Regulations by removing the too-restrictive reference to Parts 23 and 25 of the FAR's that was included at the time of recodification. As a result, an airplane having a restricted category airworthiness certificate appropriate for flight instruction in agricultural aircraft operations may now be used for flight instruction in a pilot training course approved under § 141.71(e). It may be noted that the limitation of § 141.55(b) previously has applied only to airplanes. Thus, that section has not prohibited the use of rotorcraft for pilot training in agricultural or external-load operations (the other kind of proficiency that as yet is the subject of an approved pilot training course under Subpart D).

These amendments also clarify Part 91 of the Federal Aviation Regulations in connection with flight instruction in view of the described amendment to Part 141. Specifically, § 91.39(a) and (b) are amended to make it clear that a restricted category aircraft can be used, for compensation or hire, to provide flight crewmember training in a special purpose operation for which the aircraft is certificated under Part 21 of the Federal Aviation Regulations.

The purpose of Amendment 5 to Part 141, effective November 9, 1967, was to establish equivalent but more practical levels of experience for chief flight instructors. Previously, the chief flight instructor for a commercial flying school was required to have an instrument rating. However, the notice of proposed rule making (Notice 67-23), as well as the rule as finally issued, required him to have an instrument rating also on his flight instructor certificate, although the preamble for neither document explained that this was intended. Apparently, persons generally read the notice as not changing the single instrument rating requirement then in effect, and they did not comment. As a result, an unintended burden was placed upon pilot schools under Part 141, although in fact the rule was issued on less than 30 days notice on the basis that it relieved an undue burden on flying schools and flight instructors. The accompanying amendments clarify the language of the rule to indicate specifically that the chief flight inspector for a commercial or flight instructor flying school needs the instrument rating only on his pilot certificate.

Since these amendments are necessary to complete the objectives of Amendments 5 and 6 to Part 141, and are clarifying only as to Part 91, I find that notice and public procedure thereon are unnecessary and that these amendments may be made effective on less than 30 days notice.

In consideration of the foregoing, Parts 91 and 141 of the Federal Aviation Regulations are amended, effective September 11, 1968.

These amendments are issued under the authority of sections 313(a), 601, 603, 607, and 608 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1427, 1428).

Amendment 91-59

Flights by Foreign Civil Aircraft Without DME

Adopted: September 5, 1968 **Effective: October 11, 1968**

(Published in 33 F.R. 12825, September 11, 1968)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to permit the conduct of certain flights above 24,000 feet by foreign civil aircraft that are not equipped with distance measuring equipment (DME).

This amendment is based on a notice of proposed rule making, (Notice 67-57) issued on December 28, 1967, and published in the Federal Register on January 5, 1968, (33 F.R. 151). The basis for this amendment is fully discussed in that notice. Comments received in response to the Notice agreed with the proposal.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all matter presented.

In consideration of the foregoing, and for the reasons stated in Notice 67-57, section 91.43 of the Federal Aviation Regulations is amended, effective October 11, 1968, by adding a flush paragraph following paragraph (e).

This amendment is issued under the authority of sections 307, 313(a), and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), and 1421).

Amendment 91–60

Air Travel Clubs

Adopted: September 5, 1968 Effective: October 14, 1968

(Published in 33 F.R. 12887, September 12, 1968)

The purpose of these amendments is to provide certification and operation standards for air travel clubs using large airplanes in the conduct of their operations.

These amendments are based on a notice of proposed rule making published in the Federal Register on July 13, 1967 (Notice 67–27, 32 F.R. 10311). Interested persons have been afforded an opportunity to participate in the rule making through submission of written comments. Due consideration has been given to all relevant matter presented.

In Notice 67–27, the FAA proposed to enlarge the applicability of Part 121 to apply the commercial operator certification and safety standards of that part to air travel clubs. As stated therein ". . . when a passenger has, in any manner, paid for his carriage aboard a large aircraft the FAA believes that the applicable safety standards should not depend on a distinction as to whether that passenger is carried for 'compensation or hire' or is 'sharing expenses' with other passengers. The average passenger certainly is not aware that the method by which he pays for his carriage determines the level of safety that the operator of the aircraft is required to maintain. Except for the method of payment, the typical travel club operation is in all practical respects no different from a charter flight conducted by a commercial operator, and the FAA believes that the level of safety required by Part 121 should be maintained."

Upon considering the comments submitted by the air travel clubs and other interested persons, the FAA has determined that the form of the proposed rules should be changed by establishing a new Part 123 to govern the certification and operations of these clubs. This is being done in order to provide some variation from the commercial operator rules to accommodate certain unique characteristics of air travel clubs. For example, the travel clubs derive their income from dues, travel fares, and assessments on their membership. Consequently, the requirements for retention of contracts and submission of detailed financial statements have been omitted. Air travel club operations are also more sporadic and not subject to tight schedules. Therefore, detailed flight time limitations are not necessary and relieving crewmembers from all duty for eight hours out of each 24 consecutive hours will suffice.

There are also differences with respect to maintenance. Most air travel clubs operate their aircraft for a relatively small number of hours when compared to commercial operators of large aircraft. These limited operations do not require a full time maintenance department and such an organization would be economically unfeasible for most air travel clubs. Therefore, the clubs will be permitted to continue using the same basic maintenance system that is required for general aviation aircraft. However, certain controls are being added to improve the reliability of this system. The major aspect of these controls is the establishment of a continuous inspection program similar to that required of Part 121 operators. As a part of its manual, the air travel club must provide instructions, procedures, and schedules for detailed and continuous inspection of its aircraft. The manual will also provide a system of records for defects discovered during these inspections. This inspection program is being required in place of the 100-hour, annual, or progressive inspections provided for under Part 91 and will have to meet with FAA approval, to be granted through operations specifications issued to each certificate holder. In conjunction with this new inspection requirement, the certificate holder is being charged with the ultimate responsibility for having these inspections performed in accordance with its manual. The inspections will be performed by certificated mechanics or repair stations at the direction of the certificate holder. All other maintenance will be performed in accordance with Parts 43 and 91 as has been done in the past.

The effective date of the new rules and the provisions of §123.3 are designed to permit continued operations by air travel clubs that are organized and in operation on the date of adoption. Existing travel clubs may continue to operate without a certificate after the effective date of these rules until December 1, 1968. If an application for a certificate is made by that date they may continue to operate pending action on the application. In addition, in order to avoid disruption of their operation only a limited number of the operating rules will be applicable until February 1, 1969, unless a certificate is issued or denied before that date.

Due to the substantial differences between the basic organization of a commercial operator and that of an air travel club, the rules governing the certification process have been completely rewritten. The other provisions of Part 121 that are applicable to commercial operators of large aircraft have been incorporated by reference with some deletions and minor changes as specifically set forth in Subpart D of Part 123.

Upon consideration of the comments received in response to Notice 67-27, Parts 43,* and 91 of the Federal Aviation Regulations are amended and a new Part 123* is added to Subchapter G, effective October 14, 1968.

These amendments are issued under the authority of sections 313(a), 601(a), and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421(a), and 1427).

Note: The recordkeeping and reporting requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

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*Parts 43 and 123 are published separately.

Amendment 91–61

Critical Rotorcraft Components

Adopted: September 10, 1968 **Effective: October 17, 1968**

(Published in 33 F.R. 14104, September 18, 1968)

The purpose of these amendments to Parts 21, 27, 29, 43, 45, 91 and 127 of the Federal Aviation Regulations is to (1) permit rotorcraft manufacturers to adopt failsafe fatigue design practices for certain portions of the flight structure on condition that related fatigue crack detection procedures and inspection intervals are approved under the required fatigue evaluation as part of the type design and placed in a separate section of the rotorcraft maintenance manual, (2) require that the replacement times of certain critical components be similarly approved and placed in the separate section of the maintenance manual, (3) require that this section of the manual be referenced by placard in the rotorcraft, and (4) specifically require operators and maintenance personnel to comply with this section of the maintenance manual. The amendments will also require manufacturers to make certain revisions of the rotorcraft maintenance manual available to operators and require identification of certain critical components.

These amendments are based on a Notice of Proposed Rule Making (Notice No. 67-44) published in the Federal Register on October 11, 1967 (32 F.R. 14106).

A number of comments were received in response to Notice No. 67-44, most of which were in agreement with the proposal. The more pertinent of the comments that raised questions together with the changes in the proposal resulting therefrom are discussed hereinafter.

In view of the new sections that were proposed, one commentator suggested that existing §§ 27.307(a) and 29.307(a) be clarified by indicating that the structural analysis used in connection with proof of structure, be permitted to be either static or fatigue. The FAA agrees that such a change would more fully express the intent of the rule yet not imply a change in past practice in which fatigue evaluation has generally involved testing. The sections have been amended accordingly.

As previously stated in the preamble of the Notice, the standards of new §§ 27.571, 29.571, 27.1529 and 29.1529 are intended to preserve the design objectives stated in Notice 65-42, Airframe Proposal 8, except for clarifying changes.

One commentator stated that use of the word "component" in the proposed §§ 27.571(a) and 29.571(a) could be interpreted as meaning that the entire fuselage, for example, and most of its elements are critical so that a formal fatigue evaluation would be required to be performed on each frame, stringer, panel, or combination. However, since not all parts of a flight structure, such as the fuselage, are likely to be critical in fatigue, it was suggested that the requirement be clarified to call for evaluation only of those considered critical. The FAA is in substantial agreement for it was not intended to require detailed evaluation of a portion of the structure for which no significant fatigue loading exists. The paragraph has been amended, therefore, to delete the word "component" and indicate that it is the critical portion of the flight structure that must be identified and evaluated. A further recommendation that the paragraph be amended to be applicable to failures which "would" be catastrophic rather than those which "could" be catastrophic has been rejected since this would imply that doubtful areas need not be included in the fatigue evaluation. In connection with the requirement for fatigue evaluation of flight structure, it was suggested that the intent be clarified so as not to extend the fatigue evluation to non-critical parts. While the FAA agrees with the objective of this comment, it is believed that the revisions to § 27.571(a) and § 29.571(a) discussed above sufficiently delineate the applicability without introducing the new term "noncritical".

As they were proposed, §§ 27.571(a)(3)(i) and 29.571(a)(3)(i) indicated that loads and stresses need be subjected to inflight measurement only throughout the range expected in operation where such range is less than the range of design limitations stated in §§ 27.309 and 29.309. It is apparent that such a generally stated alternative is at variance with other requirements inasmuch as design weight, r.p.m. air-speeds, and c.g. limits are attainable without extreme maneuvers and are, in general, explored in other phases of the flight test program. With maneuvering load factors, the situation is otherwise, however, and since it would be unrealistic in connection with fatigue evaluation to require measurement of loads and stresses at the limit maneuvering load factors, the alternative of using operational rather than design limits would there be applicable. To remove any ambiguity with reference to weight, r.p.m., airspeed, and c.g. limits, §§ 27.571(a)(3)(i) and 29.571(a)(3)(i) have been reworded to make it clear that it is for only maneuvering load factors that inflight measurements may be made with reference to values expected in operation.

The FAA agrees with a comment that the intent of §§ 27.571(d)(2) and 29.571(d)(2) is to distinguish the lesser of the limit and maximum attainable loads rather than designate one as being applicable. The parenthetical expression in the two sections has been amended to state "whichever is less".

Pointing out that some procedures are so simple and well known that actual demonstration should not be required, one commentator objected to the requirement that all procedures in the "Airworthiness Limitations" section of the Rotorcraft Maintenance Manual be shown to be practicable. Since the need for an actual demonstration should be determined on an individual basis, the requirement for a showing has been eliminated in §§ 27.1529(a)(2)(ii) and 29.1529(a)(2)(ii).

One of the comments received in response to the Notice requested that the FAA specifically countermand the "administrative procedures" specified in the preamble. In this connection, the commentator referred to the preamble discussions in which the FAA indicated that if safety requires that the airworthiness limitations in the Rotorcraft Maintenance Manual must be made more severe, appropriate changes to the manual would be made by airworthiness directives. While the comment objected to the general use of airworthiness directives, it did indicate acceptance of telegraphic airworthiness directives for use in this regard.

As pointed out in the preamble to Notice 67–44, the inspection intervals, replacement times and related procedures set forth in the "Airworthiness Limitations" section of the Rotorcraft Maintenance Manual are limitations on the original approval of the type design. Thus, any changes to these limitations are, in effect, changes to the type design. In recognition of this fact, airworthiness directives have long been used by the FAA to prescribe changes to the service life limits for a product. However, it should be made clear that since the replacement times, inspection intervals, etc., would now be placed in a maintenance manual, the manufacturer's changes to the manual and subsequent dissemination to all operators would serve the purpose originally served by airworthiness directives. However, as the FAA pointed out in the preamble discussions, in those instances where a safety necessity exits, the airworthiness directive is the means by which the FAA can assure that the operators have the revised limitations. Moreover, an airworthiness directive would also be required in those instances in which a manufacturer failed to issue revisions to the limitations which the FAA considered necessary in the interest of safety. Only in the latter instance would the FAA make changes to the

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manual by airworthiness directive. As the commentator correctly noted, approved revisions to the airworthiness limitations section of the maintenance manual have had the same legal effect as the original limitations and the issuance of airworthiness directives with respect to such limitations would not be inconsistent with that fact.

The FAA agrees with one final suggestion that service experience may be used in certain instances in a resubstantiation of the flight structure, as, for example, for a relaxation of a replacement time or inspection interval in the "Airworthiness Limitations" section of a Rotorcraft Maintenance Manual. It must be recognized, of course, that time extensions for parts, the failure of which would be catastrophic, cannot be based solely on failure rates or absence of failures in service. However, it is intended to permit appropriate use of service experience in reevaluating flight structure in accordance with §§ 27.571 and 29.571. In this connection, laboratory tests might be made on parts that have been used in service to determine whether the original assumptions were overly conservative.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all matter presented.

In consideration of the foregoing, Parts 21, 27, 29, 43, 45, 91, and 127* of the Federal Aviation Regulations are amended effective October 17 1968.

This amendment is made under the Authority of sections 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425).

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*Parts 21, 27, 29, 43, 45, and 127 are published separately.

Amendment 91–62

Mechanical Work Performed on U.S. Registered Aircraft by Certain Canadian Persons

Adopted: October 24, 1968 **Effective: November 29, 1968**

(Published in 33 F.R. 15988, October 31, 1968)

The purpose of these amendments to Parts 43 and 91 of the Federal Aviation Regulations is to extend to authorized employees of approved Canadian companies the privileges presently granted Canadian Aircraft Maintenance Engineers; to authorize certain Canadian individuals to perform 100-hour inspections; to clarify the provisions for approval of Canadian performed mechanical work; and to permit operation of an aircraft following a 100-hour inspection performed by the authorized Canadian persons.

These amendments were proposed in Notice of Proposed Rule Making (Notice 68–6) published in the Federal Register on March 12, 1968 (33 F.R. 4420).

One of the comments stated that the proposal was acceptable provided the persons performing the inspections and mechanical work other than holders of Canadian Aircraft Maintenance Engineer licenses, have qualifications which are equivalent to the U.S. standard and requirement for similar work. This comment obviously has reference to a Canadian Approved Inspector. The FAA is satisfied that all the persons authorized to perform these tasks have such qualifications. In this connection, the Canadian Department of Transport (DOT) has advised the FAA that the principal difference between an "Approved Inspector" and a "Canadian Aircraft Maintenance Engineer" (who is authorized by the current provisions of § 43.17 to perform maintenance, preventive maintenance, and alterations on U.S. registered aircraft in Canada) is that the Approved Inspector certifies work under a company approval number instead of a personal license number. In fact, the Canadian DOT advises that employees of an Approved Company who hold signing authority (Approved Inspectors) are classed as Aircraft Maintenance Engineers.

There were other comments that endorsed the proposal and recommended that the Canadian authorities be authorized to perform the required work on U.S. airplanes in Canada necessary for the continued airworthiness status of these airplanes (i.e., the performance of the annual inspections required by Part 91). While these recommendations involve substantive changes to the present requirements that go beyond the scope of Notice 68-6, it should be noted that the purpose of the proposal is to provide for a more uniform administration of the reciprocal arrangement between Canada and the United States. In this connection, the Canadian Department of Transport does not permit U.S. certificated mechanics to perform the yearly inspections required for renewal of Canadian airworthiness certificates.

The Notice also proposed that performance of mechanical work be conditioned upon the maintenance record entries being made in accordance with § 43.9 of Part 43. That section requires, in part, that major repairs and major alterations be entered on a form and the form disposed of in the manner prescribed in Appendix B to Part 43. The requirement in Appendix B that a copy of the form be forwarded to the local FAA Flight Standards District Office is not appropriate or applicable to work performed in Canada on U.S. registered aircraft. The form containing the information on major repairs and major alterations should be forwarded to the Federal Aviation Administration, Aircraft Registration Branch, P.O. Box 25082, Oklahoma City, Oklahoma 73125. In addition, it should be made clear that all of the FAA Form 337 must be completed, including the portion covering approval for return to service prior to the time it is forwarded to the FAA. Therefore, a new paragraph (c) has been added to Appendix B covering major repairs and major alterations performed in accordance with § 43.17. Since this is a clarification that imposes no additional burden on any person, further notice and public procedure thereon is unnecessary.

Interested persons have been afforded an opportunity to participate in the making of this amendment. All relevant matter submitted has been fully considered.

In consideration of the foregoing, Parts 43 and 91 (§ 91.169(b)) of the Federal Aviation Regulations (14 CFR Parts 43 and 91) are amended effective November 29, 1968.

This amendment is made under the authority of section 101(7), 313(a), 601, and 610 of the Federal Aviation Act of 1958 (49 U.S.C. 1301(7), 1354(a), 1421, 1423, and 1430).

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*Part 43 is published separately.

Amendment 91–63

Category II Operations

Adopted: November 14, 1968 Effective: December 22, 1968

(Published in 33 F.R. 17291, November 22, 1968)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to clarify certain of the equipment requirements for Category II Operations conducted by general aviation airplanes.

On April 25, 1967, the FAA issued a comprehensive group of amendments (32 F.R. 6901, May 5, 1967) that established standards and procedures for the use of Category II approach minimums. The preamble to those amendments noted a number of substantive changes from the notice of proposed rule making and invited public comment for possible future amendments. As a result of those comments and several petitions for rule making, the FAA has decided to alter and clarify some of the equipment requirements contained in Section 2 of Appendix A to Part 91.

A number of objections have been raised to the requirement for dual flight director displays. It is felt that a second display of computed command information from the flight director system is repetitious and unnecessary. On the other hand, some persons believe that the rules do not require any display of basic data nor do they require a display of information from the other ILS system. Therefore, there did not appear to be true duality of instrumentation as is provided for the other critical flight instruments and, as a result, the functioning of the ILS could not be properly monitored.

These comments indicated that there is some misunderstanding with respect to the instrumentation that is required. Section 2(a)(1) of Appendix A requires two complete ILS receiving systems, which would have to include a basic display from each system. Section 2(a)(9) requires either an automatic approach coupler or a flight director system. If a flight director system is used, two displays of computed ILS information must also be provided. Thus, there is duality of basic ILS displays for monitoring of ILS function and duality of computed displays to assure that the pilot who is flying the approach will have the necessary instrumentation regardless of which seat he is occupying.

However, in view of such comments, the FAA believes that these equipment requirements should be clarified and made somewhat more flexible. Therefore, the rules are being amended by deleting the requirement for dual displays of computed flight director information. Assurance that the pilot flying the approach will have the proper flight director instrumentation is achieved by a direct requirement to that effect in § 91.6. The requirement for a basic ILS display from each system is specifically set forth. It is also made clear that there must be a basic ILS display on each side of the instrument panel in order that the performance of the ILS can be adequately monitored during the approach. The term "flight director" is somewhat ambiguous since some "flight director" systems have been advertised that do not provide computed command information but only basic ILS course and glide slope data. Therefore, the essential elements of a flight director system are specifically required by this amendment. In addition the use of a single axis automatic approach coupler is permitted.

A minor correction is also made to § 91.34(c) which should have referred to "section" rather than "paragraph."

Since these amendments are clarifying or relaxatory in nature and impose no additional burden on any person, I find that notice and public procedure are unnecessary.

In consideration of the foregoing, Part 91 (§§ 91.6(a)(3), 91.34(c), Appendix A. Section 2(a)(1) and (9)) of the Federal Aviation Regulations is amended, effective December 22, 1968.

These amendments are issued under the authority of §§ 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421).

Amendment 91–64

Flight Restrictions in the Proximity of the Presidential and Other Parties

Adopted: February 18, 1969 **Effective: February 25, 1969**

(Published in 34 F.R. 2551, February 25, 1969)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to establish a provision for restricting flight operations in the vicinity of the Vice President and certain other persons, when necessary to safeguard the public and these persons.

On November 30, 1968, Notice of Proposed Rule Making 68-33 was published in the Federal Register (33 F.R. 17854) stating that the Federal Aviation Administration was considering amending § 91.104 of the Federal Aviation Regulations to broaden its coverage to include the Vice President and other public figures. As stated in the notice, interest in public figures other than the President may also cause the assembly on the ground of a large number of persons, and numerous aircraft to maneuver in flight along the route and in the vicinity of the places visited by these persons. Since such conditions may derogate the safety of persons and property on the ground and create a hazard to aircraft engaged in air commerce, the FAA proposed under the provisions of NPRM 68-33 to establish an expeditious method of immediately prescribing any air traffic limitations necessary to provide safeguards for the protection of aircraft and persons and property on the ground.

Interested persons were afforded an opportunity to participate in the making of this amendment and due consideration was given to all matters presented.

Six comments were received in response to the notice. Two supported the proposal, while 4 comments expressed concern over the possibility that freedom of operation would be unduly restricted by a casual application of the rule. In response to this concern the FAA wishes to assure aircraft operators that the rule will be applied only after due consideration of all factors involved and any restrictions imposed upon air traffic will be those found necessary for the protection of aircraft as well as persons and property on the ground.

Inasmuch as the Special Federal Aviation Regulation No. 20 (33 F.R. 11977) currently protecting the Vice President expired February 1, 1969, good cause exists for making this regulation effective in less than 30 days.

In consideration of the foregoing, § 91.104 of Part 91 of the Federal Aviation Regulations is amended, effective February 25, 1969.

This amendment is issued under the authority of sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348 and 1354), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–65

Use of Parachutes in Acrobatic Flight

Adopted: July 31, 1969 **Effective: August 8, 1969**

(Published in 34 F.R. 12882, August 8, 1969)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to clarify existing regulations which relate to the use of parachutes during acrobatic flight, and relate to the definition of acrobatic flight.

Section 91.71(a) prohibits acrobatic flight in certain airspace, and for purposes of that paragraph defines acrobatic flight as an intentional maneuver involving an abrupt change of the attitude of the aircraft, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.

Paragraph (b) of that section requires that parachutes be worn by each person (other than a crewmember) in the aircraft when any maneuver intentionally performed exceeds 60 degrees of bank, or 30 degrees of nose position relative to the horizon. The definition given in paragraph (b) was intended only to define the circumstances under which parachutes must be worn, and not to modify the definition of acrobatic flight for any other purpose in the Federal Aviation Regulations. Paragraph (c) of § 91.71 sets out certain exceptions to paragraph (b).

To avoid any possible misunderstanding because of the location of paragraph (b) in proximity to the restrictions on acrobatic maneuvers in certain airspace, we consider it appropriate to transfer paragraphs (b) and (c) without any substantive change to § 91.15, which deals only with parachutes and parachuting.

Since this amendment merely clarifies existing regulations regarding the use of parachutes, and imposes no additional burden on any person. I find that notice and public procedure are unnecessary, and that good causes exists for making this amendment effective on less than 30 days notice.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective August 8, 1969.

This amendment is issued under the authority of sections 313(a), 601, and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, and 1427) and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–66

Carriage of Narcotic Drugs, Marihuana, and Depressant and Stimulant Drugs by Aircraft

Adopted: August 27, 1969 **Effective: September 5, 1969**

(Published in 34 F.R. 13922, August 30, 1969)

The purpose of these amendments to the Federal Aviation Regulations is to prevent the hazardous operation of aircraft by prohibiting the carriage by aircraft of narcotic drugs, marihuana, and depressant and stimulant drugs under certain limited conditions.

These amendments were proposed in Notice 69-32 and published in the Federal Register on August 5, 1969 (34 F.R. 12713). Under the Notice the FAA proposed:

(1) that violation of the prohibition against carriage be a basis for denying applications for pilot, flight instructor, flight engineer, and flight navigator certificates, and for the suspension or revocation of those airman certificates or of the operating certificates issued under Parts 121, 123, 127, and 135;

(2) a requirement for the filing of a flight plan on all flights between Mexico and the United States;

(3) that conviction for violation of the statutory provisions concerning the prohibited items is also grounds for denying, suspending, or revoking those airman certificates.

Two requests were received in response to the proposal for extension of the comment period, and these requests were denied because the public interest considerations involved in this rule required final rule making action at the earliest possible time. Public comments with respect to the substance of the rule were received from five sources. All of them expressed concern that as proposed § 91.12(a) would make the aircraft operator a violator even when he does not know of the presence on board the aircraft of a proscribed article. In response to these comments the prohibition against carrying the proscribed items in § 91.12(a) has been clarified to make it a violation of that section only when the operator of the aircraft has knowledge that the aircraft is carrying the proscribed articles. One of the comments urged that additionally the rules should not be applied to air carriers who frequently carry narcotics and other drugs lawfully in their operations. In response to this comment § 91.12(b) has been changed by inclusion of a new paragraph (b) which excepts all lawful carriage.

Another of the comments questioned the legal basis for the adoption of the rule as a safety rule. As stated in the preamble to Notice 69-32, the provisions contained in this rule are necessary to meet and avoid the increasing hazards to safety in air commerce resulting from the increasing use of aircraft for the illicit carriage of narcotics and other drugs into the United States and Mexico. These hazards result from attempts to avoid detection or pursuit by violent maneuvers, low flying, and other extremely dangerous flight techniques, including the use of unsafe landing areas.

In the interests of clarity and conformity with judicial opinions, the phrase "final conviction" has been used in lieu of "conviction" in §§ 61.6(a) and 63.12(a). Finally, editorial and other nonsubstantive changes have been made for the purposes of clarity and continuity.

Interested persons have been afforded an opportunity to participate in the making of these amendments. Due consideration has been given to all matter presented. In other respects, for the reasons stated in the preamble to the Notice, the rule is adopted as prescribed herein.

Since the public interest requires that these amendments be made effective as quickly as possible, I find that good cause exists for making them effective on less than 30 days' notice.

In consideration of the foregoing, Parts 61, 63, 91, 121, 123, 127 and 135* of the Federal Aviation Regulations are amended, effective September 5, 1969.

These amendments are made under the authority of sections 307(c), 313(a), 601, 602, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, 1422, 1423, 1424), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

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*Parts 61, 63, 121, 123, 127 and 135 are published separately.

Amendment 91-67

Air Taxi Operations With Large Aircraft

Adopted: September 8, 1969 Effective: November 15, 1969

(Published in 34 F.R. 14423, September 16, 1969)

The purpose of these amendments is to require air taxi operators using large aircraft to comply with the rules of Part 121 of the Federal Aviation Regulations that are applicable to domestic, flag, or supplemental air carriers, as appropriate, and to give these air taxi operators the same maintenance privileges that air carriers presently have under Parts 43 and 121.

These amendments are based on a notice of proposed rule making (Notice 68-16) published in the Federal Register on July 25, 1968, (33 F.R. 10578).

Several comments on the Notice pointed out that the inflexibility of the proposed requirement that air taxi operators conducting scheduled operations with large aircraft comply with the rules applicable to domestic air carriers. These comments expressed the view it would not be practicable for small scale or certain routine operations to conform to the domestic air carrier rules. We agree that the rules should be made more flexible. Accordingly, the amendment has been drafted to require all air taxi operators with large aircraft to conduct operations in accordance with the rules of Part 121 applicable to supplemental air carriers. In addition, the Administrator may issue operations specifications requiring those operators to conduct operations in accordance with the domestic or flag air carrier rules, in lieu of the supplemental air carrier rules, if he finds that compliance with those rules is necessary to provide an appropriate level of safety in air transportation.

The requirement of compliance with the supplemental air carrier rules was changed from the Notice primarily to reflect the present general scope of operations conducted by air taxi operators currently using large aircraft. However, provision has been made for the Administrator to require compliance with the rules usually applicable to domestic or flag air carriers, since a particular air taxi operation may expand and become more complex in the future by virtue of route extensions authorized by the Civil Aeronautics Board, increased fleet operations, the addition of IFR operations to present VFR routes, or other factors. Under these circumstances, the Administrator may find compliance with those rules necessary to provide an appropriate level of safety. This provision would also cover operators not yet certificated whose operations are proposed to be more extensive than the present general scope of air taxi operations.

Section 135.2(a) requires an air taxi operator of large aircraft to comply with Subpart L of Part 121, "Maintenance, Preventive Maintenance, and Alterations." Such an operator will have to maintain his large aircraft in accordance with a continuous airworthiness maintenance program and his maintenance manual. That operator also is authorized by § 135.2(b) to perform and approve maintenance, preventive maintenance, and alterations on small aircraft, including those operated by another air taxi operator of large aircraft, as provided in § 121.379 of Part 121. However, for administrative reasons, it is considered essential that small aircraft being maintained under the requirements of Part 121 be readily identifiable. Since the aircraft can best be identified by listing them in the operations specifications by registration number, proposed § 135.2(b) has been revised to reflect this requirement.

The holder of an air taxi/commercial operator (ATCO) certificate currently authorized under Part 135 to use large aircraft in air taxi operations is given three months from the effective date of this amendment to apply to the FAA for operations specifications issued under Part 121. After making timely application, the certificate holder may continue using his Part 135 authorization until Part 121 operations specifications are issued or denied.

It is recognized that additional time will be required by some ATCO certificate holders currently operating large aircraft in order to achieve compliance with certain of the equipment requirements in Part 121. Accordingly, a provision has been added by this amendment to authorize deviations to be granted in the Part 121 operations specifications with respect to large aircraft which do not meet certain of the Part 121 equipment requirements.

The large aircraft for which a deviation is granted must be identified in the operations specifications of the air taxi operator. Furthermore, a deviation may be granted for a period of not more than 12 months from the effective date of this amendment. We believe this period of time to be reasonable and adequate to enable an ATCO certificate holder to achieve compliance with the Part 121 equipment requirements specified in this amendment. This authority to deviate will only be granted to those ATCO certificate holders who have Part 135 operating authority on the effective date of this amendment to use large aircraft in air taxi operations. Those persons not authorized to operate large aircraft on the effective date of this amendment are required to meet all of the applicable Part 121 requirements before operations specifications are issued under Part 121 for the use of large aircraft.

One of the comments received pointed out that the applicability of emergency evacuation requirements in § 121.291(a) of Part 121 to on-the-water situations is inappropriate. The FAA agrees and has added a provision to § 135.2(c) to make it clear that compliance with § 121.291(a) is not required for large seaplanes used in air taxi operations.

Another change from the Notice has been made to make language used in the various Parts consistent. Air carriers have a "continuous airworthiness maintenance program," but § 91.161(b) speaks only to a "continuous airworthiness program." That section is being amended for the sake of consistency, by the addition of the word "maintenance" to the phrase.

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Parts 43, 91, and 135* of the Federal Aviation Regulations are amended, effective November 15, 1969.

These amendments are issued under the authority of sections 313(a), 601, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1424, 1435), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

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*Parts 43 and 135 are published separately.

Amendment 91–68

Pyrotechnic Signaling Devices

Adopted: September 22, 1969 **Effective: October 30, 1969**

(Published in 34 F.R. 15244, September 30, 1969)

The purpose of these amendments to Parts 91, 121, and 135 of the Federal Aviation Regulations is to eliminate inconsistent requirements for signaling devices on aircraft operated for compensation or hire.

These amendments are based on a notice of proposed rule making (Notice 68-29) issued on November 13, 1968, and published in the Federal Register on November 16, 1968 (33 F.R. 17114). The Notice indicated the proposal might be changed in the light of comments received. As a result of the comments, two minor changes are being made in the amendments as adopted.

As explained in the Notice, § 91.33(b)(11), which prohibits the operation of a powered civil aircraft with a standard category U.S. airworthiness certificate for hire over water beyond power-off gliding distance from shore unless that aircraft contains a Very pistol, applies to aircraft operated under Parts 121 and 135. In addition, air carriers and commercial operators are required by present § 121.339 to have suitable pyrotechnic signaling devices on airplanes while flown in extended overwater operations. Air taxi and commercial operators of small aircraft are required by present § 135.163 to carry one pyrotechnic pistol and six cartridges on each life raft aboard aircraft operated in extended overwater operations. As proposed in the Notice, the requirement that the device be of a pistol configuration for Part 135 operations has been dropped, allowing the use of any pyrotechnic signaling device which is appropriate for the operation being conducted considering time of day, distance from shore and rescue facilities, means of rescue expected, and so forth.

This amendment deletes the requirement for a "Very pistol" in Part 91 and substitutes a requirement for at least one "pyrotechnic signaling device," thus making the terminology in Part 91 consistent with that used in Parts 121 and 135 as amended herein.

One comment pointed out that proposed § 91.33(b)(11) can be interpreted as requiring one pyrotechnic signaling device for each occupant of the aircraft. The intent of the amendment adopted herein is to require at least one such device for each aircraft. The carriage of additional devices is a discretionary matter which rests with the operator of the aircraft.

Under Part 135, at least one pyrotechnic signaling device is required by this amendment for each life raft carrier aboard the aircraft. As proposed, the requirement for Part 121 operations was not related to the number of life rafts aboard. One comment pointed out that it is not realistic to require only one signaling device for operations under Part 121 in aircraft which may have several life rafts. The FAA agrees and the amendment of § 121.339 as adopted requires that at least one pyrotechnic signaling device be carried for each life raft.

In the case of a cartridge type device, responsibility for determining the number of individual signal flares to be carried for a particular operation will rest with the operator of the aircraft.

Several other comments are considered to be outside the scope of the Notice. These include comments with respect to suggested specifications for signaling devices such as shelf life, color, and flotation capability, the use of other kinds of signaling devices such as strobe lights, and comments with respect to the kinds of operations to which the signaling device requirement should be applied, such as flights over uninhabited areas and flights not for hire. However, each of these comments has merit and may be considered by the FAA in future rule-making actions.

Interested persons have been afforded an opportunity to participate in the making of this regulation and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Parts 91, 121, and 135* of the Federal Aviation Regulations are amended, effective October 30, 1969.

These amendments are issued under the authority of sections 313(a), 601, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1424), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-69

Special Flight Authorizations for Foreign Civil Aircraft

Adopted: October 3, 1969 **Effective: October 10, 1969**

(Published in 34 F.R. 15697, October 10, 1969)

The purpose of this amendment of § 91.28(b) of the Federal Aviation Regulations is to substitute the word "Administrator" for "FAA Regional Director" and thereby achieve uniformity with other provisions of the regulations.

Section 1.1 of the Federal Aviation Regulations defines "Administrator" as ". . . the Federal Aviation Administrator or any person to whom he has delegated his authority in the matter concerned." In view of this definition, it is customary to use the term "Administrator" in the regulations and provide for a delegation of the authority involved by the Administrator. This amendment, therefore, substitutes the "Administrator" for the "FAA Regional Director" in § 91.28(b) for purposes of uniformity. Regional Directors have been delegated the requisite authority so that they may issue special flight authorizations for which application is made as required by paragraph (a) of § 91.28.

Since this amendment is procedural in nature and does not impose a burden on the public, I find that notice and public procedure thereon are not necessary, and that it may be made effective on less than 30 days notice.

In consideration of the foregoing, paragraph (b) of § 91.28 of the Federal Aviation Regulations is amended, effective October 10, 1969, by deleting the phrase "FAA Regional Director" therefrom and by inserting "Administrator" in its place.

This amendment is issued pursuant to the authority contained in sections 313(a), 601, 603, and 610(b) of the Federal Aviation Act of 1958, (49 U.S.C. 1354, 1421, 1423, and 1430), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–70

Additional Operating Rules Applicable to Operations for Compensation or Hire With Small Aircraft

Adopted: November 26, 1969 **Effective: April 1, 1970**

(Published in 34 F.R. 19130, December 3, 1969)

The purpose of these amendments to Parts 91, 121, 127, and 135 of the Federal Aviation Regulations is to establish certain additional operating requirements for air taxi and commercial operators conducting operations with small aircraft under Part 135, and to require that persons holding certificates issued under Parts 121 and 127 conducting operations with small airplanes conduct those operations in accordance with Part 135.

These amendments are based on a Notice of Proposed Rule Making issued as Notice 69–4 and published in the Federal Register on January 30, 1969, (34 F.R. 1443).

Interested persons have been afforded an opportunity to participate in the rule making through submission of written comments. Due consideration has been given to all relevant matter presented.

Numerous comments were received in response to the Notice. Based upon these comments and upon review within the FAA, a number of changes have been made to the proposed rule. Many of these changes involve rewording and reorganization for clarity and consistency. The final amendments, pertinent comments, and the more significant changes from the Notice are discussed in the order in which they were proposed in the Notice.

Operation of small airplanes and helicopters by Parts 121 and 127 certificate holders. This amendment provides for temporary continued effectiveness of existing operations specifications authorizing persons holding certificates issued under Parts 121 and 127 to conduct operations in small aircraft under Part 135 until new operations specifications are issued. Specifically, it will be noted that operations specifications authority to operate small aircraft under Part 135 expires on May 31, 1970, unless the certificate holder applies before that date for new specifications authority.

The Notice proposed to apply § 121.9 only to small airplanes, thereby removing small helicopters from its coverage. It is the intent of this amendment to require persons holding certificates issued under Part 121 or 127 to operate small helicopters in accordance with § 121.13 or Part 127, as appropriate, unless the Administrator finds that safety in air transportation and the public interest allow the operation of small helicopters under Part 135 in a particular case. Accordingly, § 121.13 has been changed by adding a new paragraph (d), that provides for operating small helicopters under Part 135, in accordance with appropriate operations specifications authority, if the Administrator finds that safety in air transportation and the public interest allow it.

Section 121.27 presently contains a provision for the issuance of deviations from the rules of Part 121 applicable to operations conducted by domestic air carriers in small airplanes. This amendment deletes that provision, since under the rules adopted herein, all domestic air carrier operations in small airplanes will be required to be conducted under the provisions of Part 135.

Applicability of Part 135. The Notice proposed to broaden the applicability of Part 135 to accommodate certificate holders under Parts 121 and 127 operating small airplanes. However, such an amendment to the applicability provisions of Part 135 is unnecessary, since the applicability of the operating rules in Part 135 to Parts 121 and 127 certificate holders operating small aircraft is provided for in Part 121 by §§ 121.9 and 121.13, and in Part 127 by § 127.5, as amended herein.

Duration of ATCO certificate. Under this amendment, each ATCO certificate in effect immediately prior to the effective date of the amendment expires on May 31, 1970, unless the holder thereof applies for a new certificate and operations specifications before the expiration date. The amendment permits the certificate holder to continue operations, under the operations specifications and rules of Part 135 in effect immediately prior to the effective date of the amendment, until May 31, 1970, or if application for a new certificate is made, until a new certificate and operations specifications are issued or the application is denied.

Contents of operations specifications. The Notice proposed to amend § 135.13(b)(2) to broaden the contents of the operations specifications to include a list of the types of instrument approach procedures authorized and a list of aircraft required to be inspected in accordance with an approved aircraft inspection program. The proposed listing of instrument approach procedures has not been adopted. The FAA agrees with comments point out that the authorization of types of procedures is meaningful only if related to specific aircraft or pilots. It should be noted that § 135.131 requires a demonstration of those instrument approach procedures which the pilot is authorized to conduct.

The proposed listing of aircraft to be inspected in accordance with an approved aircraft inspection program is clarified by requiring those aircraft to be listed by registration number.

The proposed amendment to § 135.15 contained a statement that an air carrier or commercial operator holding a certificate under Part 121 or 127 is not eligible for a certificate under Part 135. Although an air carrier certificated under Part 121 or 127 may conduct operations in small airplanes in accordance with the rules of Part 135, it is excluded from the classification of air carriers designated as "air taxi operators" by the rules of the Civil Aeronautics Board (CAB) and, therefore, is not eligible to hold an ATCO certificate. In view of the fact that it is the rules of the CAB that make an air carrier ineligible for an ATCO certificate, the proposed statement of ineligibility with respect to persons holding air carrier certificates is considered unnecessary and is, therefore, not adopted in this amendment.

However, with respect to persons holding commercial operator operating certificates issued under Part 121, this amendment retains an eligibility requirement. In the past, the FAA has found that only on rare occasions or in special circumstances can an applicant show that his contract business conducted under Part 121 in large aircraft would not result directly or indirectly from his holding out as a common carrier in his air taxi operations. As amended, § 135.15 requires that a person holding a commercial operator operating certificate issued under Part 121 must, in order to obtain an ATCO certificate, show that his proposed operations will not result in common carriage operations conducted with large aircraft operated under Part 121. Of course, he may conduct commercial operations in small airplanes, as provided by § 121.9, by obtaining appropriate operations specifications authority.

Notification of establishment or change of location of business office or operations base. As amended, § 135.41 has been changed from the Notice to allow operations from temporary operations bases without notifying the District Office. The notification requirement is not intended to apply to operators who establish a temporary operating base until a construction job is completed within operating range and then move on to another temporary operations base or return to their home base. However, such operators must give notification before changing the location of any business office.

Briefing of passengers. In response to numerous comments, the method of briefing passengers before flight has been changed from the oral briefing proposed in the Notice to allow other kinds of briefing such as printed cards and to avoid unnecessary repetition of an oral briefing before each flight when the same passengers are carried on several flights in the same aircraft on the same day. As adopted § 135.81 requires the pilot to ensure that each passenger is familiar with the briefing information before takeoff.

Limitations for operations in icing conditions. Section 135.85(d)(3) has been changed from the Notice to include airplanes certificated in accordance with Special Federal Aviation Regulation No. 23 in the list of airplanes in paragraph (d) of that section.

Some comments contended that proposed paragraph (e) of § 135.85 would allow a pilot to ignore forecast icing conditions; other comments recommended deleting the prohibitions against flying into forecast icing conditions. The amendment is intended to allow for changing weather conditions that obsolete a forecast before the next forecast is issued. The proposal as adopted herein has been revised for purposes of clarification.

Pilot in command qualifications. The proposal that pilots operating VFR must have a minimum of 500 hours of flight experience and hold an instrument rating received the greatest number of comments in response to the Notice. It appears that a substantial number of air taxi pilots do not hold instrument ratings and the adoption of the proposed instrument rating requirement would create an unnecessary burden on air taxi operators that is not supported by past operating experience. An examination of records of accidents involving aircraft operated by ATCO certificate holders reveals that of 11 fatal accidents involving VFR flights into instrument conditions during an 18-month period, nine of the pilots held instrument ratings and during that period no pilots with less than 500 hours had any fatal accidents in ATCO operations. On the basis of this review of the accident statistics, the FAA has determined to make no change in the present pilot qualification requirements for day or night VFR flight. As proposed in the Notice and as adopted herein these requirements apply to all flights regardless of whether or not passengers are carried.

Pilot in command qualifications: IFR flight. Section 135.125, as adopted herein, contains the pilot in command qualifications for IFR flight proposed in § 135.121(a) of the Notice.

Deletion of § 135.129. Section 135.129 is deleted as proposed in the Notice.

Manual requirements. Section Number 135.27 is assigned to Item 15 of the Notice. Section 135.27 is changed to provide authority for granting a deviation from the manual requirement where the operation is so small that a manual is not a necessary management device for the orderly and safe conduct of operations. In addition to the single-pilot-owner operation, some organizations may have no need for all or part of the manual because of the limited size and kind of their operations.

Section 135.27(b)(13) requires that those certificate holders who have a manual and an approved inspection program include the program in the manual.

Recordkeeping and administrative controls. Section Number 135.43 is amended to include Item 16 of the Notice. The load manifest requirement is changed from the Notice to apply only to multiengine aircraft for which a crew of two pilots is required for all Part 135 operations. This would include aicraft with a passenger configuration for more than nine passengers and aircraft that are required to have a crew of two pilots by their operating limitations. Weight and balance procedures for aircraft other than those to which § 135.43(c) applies are covered in the manual, when a manual is required, and the training program.

The information required to be contained in the load manifest concerning the weight and balance of the loaded aircraft is changed from the Notice to simplify the manifest and the retention period for the manifest is changed from the proposed 3 months to 30 days.

Training of employed certificated mechanics. Item 17 of the Notice is not adopted. The purpose of the proposal in Item 17 was to ensure that no certificate holder uses the services of any person for supervision or approval of maintenance or alterations who has not satisfactorily performed the work concerned at an earlier date. This limitation on the privileges of a certificated mechanic is currently contained in § 65.81 of Part 65 of the Federal Aviation Regulations and § 135.33 prohibits a certificate holder from using the services of any person as an airman, which includes a mechanic, unless that person is qualified under the Federal Aviation Regulations. Accordingly, adoption of proposed Item 17 is considered unnecessary.

Compliance with types of instrument approach procedures authorized. Item 18 of the Notice is not adopted. As explained above, the proposal to require approval of types of instrument approach procedures in the operator's operations specifications has not been adopted. However, under § 135.138(b) as adopted herein each pilot will be required to demonstrate his ability to conduct each type of instrument approach procedure that he is authorized to use.

Flight locating requirements. Some comments suggested that flight locating requirements in Item 19 should not apply to contract operations in remote areas where flights are made from temporary bases. However, there is sufficient latitude in the provisions of subparagraph (a)(3) of § 135.29 to permit compliance under those circumstances. Therefore, § 135.29, assigned to Item 19 of the Notice is adopted herein as proposed in the Notice.

Aircraft proving tests. Section Number 135.32 is assigned to Item 20 of the Notice. The proposal is changed: (1) to clarify what was meant by "type" in the Notice; (2) to provide for deviations from the specific hours of testing required in special circumstances;

(3) to make the proving test requirements inapplicable to aircraft presently operated by a certificate holder under Part 135; and (4) to explain the phrase "materially altered in design."

Landing and takeoff distance limitations. Section Number 135.113 is assigned to Item 21 of the Notice and is adopted as proposed in the Notice.

Alcoholic beverages. Section Number 135.115 is assigned to Item 22 of the Notice. The rule as adopted herein contains the same language as that contained in Part 121 of the air carrier rules.

One comment requested that the requirement of § 91.7 that each required crewmember be at his station, with certain exceptions, be relaxed to permit the second in command to serve as a flight attendant during portions of the flight. When a two-pilot crew is required, it should function as a team, whether observing traffic in normal operations or handling emergencies. It is not in the interest of safety to have that team effort interrupted by cabin attendant duties that are not essential to the safety of the flight, such as serving food or beverages. Accordingly, § 91.7 will remain applicable to the second in command in operations under Part 135.

Carriage of cargo. Section Number 135.117 is assigned to Item 23 of the Notice. Section 135.117 has been changed from the Notice to allow the carriage of cargo behind passengers, but not directly above passengers. Many small airplanes have a "station wagon" configuration with no cargo bulkhead between a rear cargo area and the passenger seats. If the cargo is properly secured so as to eliminate the possibility of shifting under all normally anticipated flight and ground loads, the cargo may be carried behind the passengers. Other requirements for cargo location and security, as proposed in the Notice, must also be met. These requirements apply to cargo carried aboard any aircraft, regardless of whether or not passengers are carried. The rule has been drafted to clarify the three basic ways cargo may be carried; that is, (1) in approved racks, bins, or compartments installed in the airplane; (2) in accordance with the location and security requirements specified in paragraph (c); or (3) as otherwise approved by the Administrator. The third method is intended to cover situations involving nets, bins, and other devices not installed in the airplane, but available for use in a manner approved by the Administrator.

Flight and duty time limitations. Section Number 135.136 is assigned to Item 24 of the Notice. Due to the great diversity in the operations conducted under Part 135 and the attendant need for flight time limitations that will accommodate those different operations, the weekly, monthly, and annual flight time limitations proposed in the Notice are not adopted by this amendment. Instead, the daily or 24 hour duty time limitations are changed to provide: (1) that a pilot of an aircraft requiring only one pilot may not be assigned for more than 8 hours of duty during flight time in any 24 consecutive hours; (2) that a pilot of an aircraft required to have two pilots may not be assigned for more than 10 hours of duty during flight time in any 24 consecutive hours; (3) that flight crewmembers must be given at least 10 consecutive hours free from all duties in connection with operations under Part 135 during any 24-hour period; and (4) that in the event a pilot exceeds 8 hours of assigned flight time during any 24 consecutive hours, because of circumstances beyond his control such as adverse weather conditions, he must have at least 16 hours free from all duty in operations under Part 135 before he can be assigned to another flight. We believe the foregoing daily limitations will provide adequate flight time limitations. However, we intend to keep this matter under study and will conduct periodic surveillance of the industry to determine whether there is a need for further limitations.

The term "duty during flight time" has been substituted for "duty aloft" used in the Notice in response to requests to clarify the meaning of "duty aloft."

Since the certificate holder may not know the extent of a pilot's other commercial flying during any 24 consecutive hours, the pilot is responsible for not accepting an assignment that would exceed the flight time limitations.

Second in command for aircraft with more than 10 occupants. Section Numbers 135.52 and 135.53 are assigned to Item 25 of the Notice. The two-pilot requirement in the Notice was intended to apply to any aircraft capable of carrying 10 or more passengers and to apply whether or not passengers are carried or the seats are installed, so as to include passenger-cargo versions of aircraft capable of carrying 10 or more passengers. However, the rule as drafted in the Notice did not provide a clear identity of the aircraft to which the rule would apply, since it is not clear which aircraft are capable of carrying 10 or more passengers, except when the seats are installed. As adopted, the rule requires two pilots whether or not passengers are carried if more than nine passengers seats (excluding any pilot seat) are installed.

The FAA will continue to consider, as a future rule-making action, a two-pilot requirement for airplanes based on type certificated cargo and passenger-carrying capacity rather than the seating configuration. In the meantime, the two-pilot requirement is limited to that presently in the standard operations specifications held by some ATCO certificate holders. As drafted, the rule is intended to allow the operation of an 11-seat airplane with one pilot, provided only nine passenger seats are installed and the copilot seat is not occupied by any person other than those persons authorized by the regulation.

As adopted, the two-pilot requirement applies only to airplanes and not to all aircraft as proposed. Comments pointed out correctly that insofar as the proposal applies to helicopters, it exceeds the crew requirements for scheduled air carrier helicopter operations under Part 127.

Flight attendant crewmember requirement. Section Number 135.54 is assigned to Item 26 of the Notice. The proposed requirement for a flight attendant is changed in this amendment to apply to aircraft having a passenger seating capacity of 20 or more. This change is made in view of the requirement in Part 127 for a flight attendant in helicopters with a passenger capacity of more than 19 and in view of the second-in-command requirement.

Pilot and flight attendant crewmember training programs. Section Numbers 135.55 and 135.137 are assigned to Item 27 of the Notice. Section 135.55 is changed from the Notice by transferring the substance of the provisions of proposed paragraphs (b), (c), and (d) to § 135.137 because they pertain, more appropriately, to pilot testing. Other changes have been made to avoid adopting redundant requirements and to clarify the contents of the training program.

The proposed requirement that the training program contain the minimum time to be spent in completion of the curriculums has not been adopted in view of the variations in air taxi operations, qualifications of pilots, and aircraft used. It is considered preferable to require only that the program be adequate to ensure that each required pilot and flight attendant is adequately trained to meet the applicable knowledge and skill test requirements.

Initial and recurrent pilot testing requirements. Section Number 135.138 is assigned to Item 28 of the Notice. Questions have arisen as to the standard of performance to be met in demonstrating competence in the flight tests required by § 135.138. A general standard of competence is expressed in § 61.23 of this chapter. That standard is flexible enough to apply to differences in the levels of competence expected between private and commercial pilots. In contrast to that standard, the standard in § 135.138 to be applied in the case of pilots will require the pilot to be the obvious master of the aircraft with the outcome of the maneuver never in doubt. The result is to require a higher standard of performance in testing pilots under § 135.138 than is required for the issuance of a private or commercial pilot certificate or an instrument rating under Part 61 of the chapter.

Initial and recurrent flight attendant crewmember testing requirements. Section Number 135.139 is assigned to Item 29 of the Notice and is adopted as proposed.

Pilot-in-command qualifications for routes and airports. Section Number 135.122 is assigned to Item 30 of the Notice. Paragraphs (a) and (b) of Item 30 are not adopted; since the substance of these paragraphs is adequately covered by the testing requirements in § 135.138.

The words "in operations under this Part" have been added to paragraph (b) of § 135.122 to make it clear that the duties and responsibilities to be satisfactorily performed in the check are those of a pilot in command of an aircraft in operations under Part 135.

Emergency flotation means for over-water operation. It appears that the accident record does not support the proposed requirement in Item 31 of the Notice which would involve retrofitting many of the 10,000 or more aircraft used in air taxi operations. Accordingly, the proposal is not adopted.

It will be noted that § 91.33(b)(11) applies to all operations under Part 135 and requires approved flotation gear readily available to each occupant if the aircraft is operated beyond power-off gliding distance from shore. If, for example, a takeoff is made over water, the aircraft must at all times be in a position from which it can glide to the shore, all power off, maneuvering as necessary, unless flotation means are available.

Reporting of mechanical irregularities. Section Number 135.119 is assigned to Item 32 of the Notice and is adopted as proposed in the Notice.

Empty weight and center of gravity. Section Number 135.167 is assigned to Item 33 of the Notice. The rule proposed in Item 33 of the Notice has been changed by the addition of two exceptions to the requirement in § 135.167(a) that current empty weight and center of gravity calculations be calculated from values established by actual weighing of the aircraft within the preceding three years. One exception is made for aircraft originally certificated for airworthiness within the preceding three years. The other exception is for aircraft operated under a weight and balance system approved in the operations specifications of the operator.

In addition, the compliance date for § 135.167(a) has been changed to require compliance 12 months after the effective date of this amendment and application of the rule is restricted to multiengine aircraft.

Approved aircraft inspection program. Section Number 135.60 has been assigned to Item 34 of the Notice.

As adopted, a certificate holder may apply for an amendment to his operations specifications to allow him to have his aircraft inspected in accordance with an approved aircraft inspection program instead of the annual, 100-hour, or progressive inspection requirements of §§ 91.169 and 91.171. An inspection program may be submitted for approval by the Administrator for any make and model aircraft if the certificate holder has the exclusive use of at least one aircraft of that make and model. A separate inspection program must be submitted and approved for each different make and model aircraft that the certificate holder desires to have inspected in accordance with an approved aircraft inspection program. Each aircraft subject to an approved aircraft inspection program is listed in the certificate holder's operations specifications and may be operated by a certificate holder or any other person without an annual, progressive, or 100-hour inspection in any operation that would otherwise require those inspections, as long as it is inspected in accordance with the approved aircraft inspection program. Section 91.169 of Part 91 is amended to exclude from the annual and 100-hours inspection requirements small aircraft that are inspected in accordance with an approved inspection program.

Section 135.60 also sets out procedures whereby the Administrator may amend the certificate holder's operations specifications to require certain aircraft to be inspected in accordance with an approved aircraft inspection program. Such an amendment of the operations specifications is governed by § 135.19 and the certificate holder may submit written information, views, and arguments concerning the proposed amendment and may petition the Administrator for reconsideration of such an amendment. Section 135.60 also prescribes requirements for approval of an aircraft inspection program and procedures for changes in the program, including procedures for reconsideration of any change requested by the Administrator.

Inasmuch as all certificate holders are not required to have a manual, a provision has been added for an approved aircraft inspection program manual.

Mechanical reliability reports. Section Number 135.57 has been assigned to Item 35 of the Notice. As adopted, § 135.57 is limited to multiengine aircraft. Provision has been made in paragraph (d) for delaying the submission of reports on aircraft operated in areas where mail is not collected.

Mechanical interruption summary report. Section Number 135.59 has been assigned to Item 36 of the Notice. Section 135.59, as adopted, is limited to multiengine aircraft. This amendment does not adopt proposed paragraph (b) in Item 36, which pertained to the number of engines removed prematurely.

Check pilot authorization. Section 135.135 is amended to make it clear that a check pilot's authorization will be specified in terms of the kind of tests he is qualified to give.

Second in command qualification. The point has been raised by air carriers operating under Part 121 that under Part 121 a second in command is not required to hold a category, class, or type rating appropriate to the aircraft on which he serves. These carriers have suggested that category, class, and type ratings not be required of a second in command who is subject to an approved training program conducted under Part 121. This suggestion is not adopted in this amendment. The completion of an approved training program should enable the second in command to pass a test for a rating. The flight test for a type rating may be given in conjunction with the testing portion of the operator's training program to avoid the cost of an additional flight test.

Some operators use the services of a second in command pilot when they are not required to do so by the regulations. Accordingly, § 135.127 is amended to require category and class ratings only when a second in command is required.

Autopilot: minimum altitude for use. Section 135.79(b) is amended to make it conform to the new Terminal Instrument Procedures (TERPS) terminology.

Airworthiness check. Section 135.67 is amended to include inspections under the approved inspection program. It will be noted that under § 135.27 the certificate holder must develop procedures for ensuring that the pilot in command knows that required airworthiness inspections have been made and that the aircraft has been approved for return to service in compliance with applicable maintenance requirements.

In consideration of the foregoing, Parts 91, 121, 127, and 135 of the Federal Aviation Regulations are amended, effective April 1, 1970.

These amendments are made under the authority of sections 313(a), and 601 through 610 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), and 1421 through 1430), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

NOTE.—The recordkeeping and reporting requirements contained in Notice No. 69-4 have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942. Since the recordkeeping and reporting requirements contained in the rules as adopted herein have been modified in response to comments submitted and are decreased from those proposed, approval by the Bureau of the Budget has not been obtained prior to their adoption.

Amendment 91-71

Additional Attitude Instument in Large Turbojet Aircraft

Adopted: December 31, 1969 **Effective: February 5, 1970**

(Published in 35 F.R. 304, January 8, 1970)

The purpose of these amendments to Parts 25, 91, and 121 of the Federal Aviation Regulations is to require a third (additional) attitude indicating instrument, operating from a source of power independent of the normal electrical generating system, on all large turbojet powered airplanes operated pursuant to the requirements of Part 121; and to permit certification under Part 25 and operation under Parts 91 and 121 of a large airplane without a gyroscopic rate of turn instrument installed, if that airplane is equipped with an additional attitude indicating instrument system. Persons holding certificates issued under Parts 123 and 135 who operate large turbojet powered airplanes under the operating rules of Part 121 of this chapter are subject to this requirement.

These amendments were proposed in Notice 69-26, which was published in the Federal Register on June 17, 1969, (34 F.R. 9456).

Several comments received questioned the source and interpretation of the statistics used to establish a projected failure rate for attitude indicators. The FAA statistics are based on information received from field offices and cover unscheduled removals as well as failures. In our opinion the projected failure rate based on those statistics is valid. All statistics developed from FAA sources, as well as those submitted by the industry, point up the problem of unpredictable, irregular failures resulting in the loss of attitude reference. In this connection, it is worth noting that since thhe Notice was issued, another air carrier CV-880 airplane lost total electrical power while flying at 35,000 feet under VFR conditions. In that instance, a third attitude reference system would have provided a margin of safety not otherwise available if the flight had been conducted under instrument conditions.

All commentators expressed concern about reliable attitude reference, and many suggestions were made as alternatives to the proposal in the Notice. However, none of the proposed alternatives provide for gyroscopic attitude reference after total aircraft electrical failure, or for alternatives to any but single component failure. This amendment requires a system capable of attitude presentation which continues for a minimum of 30 minutes after total aircraft electrical generating system failure, using an independent instrument, amplifier (if needed), gyroscope, and power source. We believe the totally independent system to be preferable to any single component alternative suggested.

There was also criticism that the proposal was too restrictive, providing only for equipment presently available. No such restriction was intended and the agency believes this amendment establishes requirements which may be met in a number of ways.

In light of comments concerning the location of the indicator, the language of the proposal has been changed in the amendment to require the indicator to be installed on the instrument panel in a position acceptable to the Administrator that will make it plainly visible to and usable by both pilots occupying the pilot stations. This change makes administration of the rule more flexible and precludes an interpretation that two indicators are required.

Several comments emphasized the need for the third attitude indicator to be lighted during its operation. The FAA agrees, and believes that while a requirement for appropriate lighting is inherent in the regulations, the specific requirement for indicator illumination should be set forth. Therefore, the proposal is revised to state this requirement.

All commentators except one concurred in the proposed deletion of the gyroscopic rate-of-turn indicator when the third attitude indicator system is installed. The single comment proposing retention of the rate-of-turn indicator emphasized the instrument's reliability and use as a basic attitude reference. However, the FAA believes, and all other commentators apparently agree, that in large transport category airplanes the rate-of-turn indicator is no longer as useful as an instrument which gives both horizontal and vertical attitude information. Accordingly, Parts 25, 91, and 121 are amended, as proposed, to authorize certification and operation of large aircraft without a gyroscopic rate-of-turn indicator if a third attitude indicating system is installed in accordance with Section 121.305(j).

Comments also suggested that certain other instruments or systems be made redundant, that the attitude indicator conform to certain named requirements, and that the third attitude indicator system appear on the Minimum Equipment List. However, these suggested amendments are outside the scope of the Notice, and therefore, were not considered.

Some of the comments suggested that the time proposed for compliance was inadequate because of demand, technology, or programmed modification. Upon further consideration, the FAA agrees that additional time for compliance should be provided. Accordingly, the proposed compliance date is revised by this amendment to allow 18 months for compliance. While this should allow suffcient time to achieve compliance, the agency realizes that unforeseen circumstances beyond the control of a particular Part 121 operator may arise and prevent the operator from achieving compliance by the date specified. Therefore, a provision is included whereby such an operator can obtain a limited extension from the FAA Air Carrier District Office charged with the overall inspection of its operation.

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Parts 25, 91, and 121 of the Federal Aviation Regulations are amended, effective February 5, 1970,.

These amendments are issued under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, 1423) and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–72

Aircraft Registration Eligibility, Identification, and Activity; and Certain Enforcement Procedures

Adopted: January 6, 1970 **Effective: March 7, 1970**

(Published in 35 F.R. 2578, February 5, 1970)

The purpose of these amendments to Parts 47 and 91 of the Federal Aviation Regulations is to provide for obtaining updated knowledge as to registration eligibility, identification, and activity of aircraft, by the means of new and modified reporting provisions. The amendments to Part 13 add procedures for suspending or revoking issued certificates of aircraft registration in appropriate circumstances.

These amendments were proposed in Notice 69–37, and published in the Federal Register on September 5, 1969 (34 F.R. 14079). Approximately one-quarter of the nearly 100 public comments received on the Notice supported the proposals. The remainder of the comments opposed the proposals upon grounds that fall generally into categories that are stated and answered as follows:

(1) *The information is presently available, or present procedures can be expanded to procure the needed data.* Approximately one-half of the public comments received urged that FAA Form 8320–3 (Aircraft Use and Inspection Report) and existing reporting procedures for air carrier aircraft either allow, or can be used for, the collection of the needed information; or that all or most of the requested information is available from the Federal Communications Commission, State aviation agencies, or aviation industry organizations.

(a) The information presently collected by the use of FAA Form 8320–3 does not meet the needs of the FAA, as stated in Notice 69–37, since the form does not apply to the entire aircraft fleet, and since it does not require activity data from the owner, who is more familiar with data on aircraft activity than the persons who periodically inspect the aircraft and who must execute that form. Also, the information provided by FAA Form 8320–3 does not break down the number of hours flown by use categories (purpose of flight), an element that is needed for development of safety measures, as stated in Notice 69–37.

(b) With respect to aircraft operated under Parts 121 and 127, the amendment to Part 91 now issued concerns only reporting of the make and model of the engines installed in the aircraft, since the other information sought by new § 91.53 is obtained from other sources concerning those aircraft.

(c) The FAA considered expanding FAA Form 8320–3 to include the needed additional data elements before issuing Notice 69–37, and it determined that the procedures now adopted provide a more adequate alternative.

(d) Not all of the requested information on communications equipment is available from the Federal Communications Commission. Also, the records maintained by that agency cannot practicably be correlated with individual aircraft records.

(e) Information collected through the FAA aircraft registration system is made available to most State governments and to aviation industry organizations. Information available from those sources would be the same information already provided to them, therefore they would not be fruitful sources for the additional information now sought.

(2) *Collection of the information will cause an increase in the workload and costs of the FAA that in turn will be passed on to the public, will create an unnecessary reporting burden on the aviation public, and may result in imposing additional filing or user fees.*

(a) Very little increase in the workload and costs of the FAA will result from the new provisions. A purification of FAA files of records on aircraft no longer eligible for registration will be allowed, with an accompanying decrease in total workload.

(b) The increased reporting burden on the aviation public will be minimal, consisting of information on communications and navigational aids capability of equipment in aircraft, and on hours flown and purpose of flight. Also, as stated in Notice 69–37, the FAA expects to furnish a pre-printed form with all available aircraft data on record to the registered owners, and the latter will be expected only to verify the information that has not changed since the previous reporting, correct any changed items, and supply the additional information.

(c) The proposed rule changes do not contemplate a fee for annual reporting nor any user charges.

(3) *The information will be of little or no value to the aircraft owner or to the public.* The needs of the FAA for the information to be sought under the new provisions are expressed in Notice 69-37, that is, the need for the capability to properly maintain the FAA Aircraft Registry and to limit continued aircraft registration to eligible persons, and the need for adequate knowledge on identification and activity of U.S. registered civil aircraft. As stated there, the result should be a more efficient, safe air traffic system that responds to the needs of the public, as well as greater efficiency of FAA internal management.

(4) *Collection of the information will be an invasion of privacy of the reporting public.* Collection of the information is not considered to be an invasion of privacy. Section 311 of the Federal Aviation Act of 1958 empowers and directs the Administrator to collect and disseminate information relative to civil aeronautics and, as stated in Notice 69-37, section 312 of the Act directs the Administrator to make long range plans for and formulate policy with respect to the orderly development and locating of landing areas, Federal airways, radar installations and all other aids and facilities for air navigation.

(5) *Some features of the enforcement provisions for violations of new §47.44 are unfair to the aviation community as a whole, are illegal, or should concern only willful failure to submit required information.*

(a) From the known situation concerning the accuracy of the present aircraft registration records, the number of aircraft owners not complying with the regulations is large. This situation has been further substantiated by the results of a sample test conducted since issuing the Notice. The new provisions are not an unfair punishment of the entire aviation community for the failure of a few aircraft owners to comply, as asserted by some commentators, but rather an exercise of the responsibility of the FAA. Objectives of these provisions cannot be fully attained under the regulations as they have previously existed.

(b) Title V of the Federal Aviation Act of 1958 provides the statutory basis for new § 47.44, and for the application of the new enforcement procedures in Part 13.

(c) To limit certificate action to instances where FAA has positive proof of willfulness by a registered owner in refusing or failing to comply, would defeat the purposes of the new provisions as stated in Notice 69-37. Also, such a limitation would be inconsistent with section 501(e) of the Act that authorizes the Administrator to suspend or revoke any aircraft registration certificate for any cause that renders the aircraft ineligible for registration. The FAA expects to publicize the new rules extensively, and it is considered that this will greatly diminish the possibility of inadvertent non-compliance.

(d) In comments on the provisions for enforcement procedures, it was asserted that the required information should be collected on a voluntary basis. However, it has been found that a voluntary basis for reporting on aircraft registration does not meet the needs of the FAA as stated in Notice 69-37.

(6) *The information should be sought from lessees, not lessor owners of aircraft.* It was asserted that air carriers should be allowed to submit information for their aircraft leased from banks or other financial institutions. However, it is appropriately the responsibility of the owner, the person in whose name the aircraft is registered, to complete the form annually, as well as to obtain any needed information from his lessee. Also, it must be noted that, with one exception, Part 2 data is not requested by new § 91.53 for Part 121 or 127 operations.

(7) *Some procedure should be provided to protect a lessee if his lessor defaults.* This would appear to be a matter properly to be taken care of between the parties.

The suggestions made by a number of commentators have been implemented by these amendments or the accompanying reporting form. Some comments, either supporting or opposing the proposals, asserted that an appropriate breakdown of hours flown and purpose of flight requires appropriate categorization to allow for such matters as separation of corporate from business aircraft, or air taxi from commercial operator, and to allow for separate identification of aircraft rental businesses. These comments have been given careful consideration, and the results are incorporated into the FAA form that will be used for reporting purposes.

Comments also were received that the term "principal operator" should be defined for reporting purposes, in connection with new § 91.53. This definition has been supplied, and as used the term means the person (other than the owner) operating the aircraft, on the reporting date, under a lease or other arrangement for a period of at least 3 months. It is considered that an identification of the principal operator in this manner will substantially assist in the attainment of distribution and effectiveness of Airworthiness Directives and the associated objective of aviation safety, as described in Notice 69-37.

Some comments recommended that reporting before July 1 of each year will allow a too-long reporting period after an anticipated cutoff on December 31 of the preceding year. Neither Notice 69-37 nor the amendments specifically mention a December 31 cutoff. However, it is anticipated that initially the new FAA Form, pre-printed with available information from the records will, when mailed out to registered owners as soon as possible after January 1, reflect the records as of December 31. It appears that the first reporting cycle will be more time consuming for both the FAA and those reporting than subsequent reporting cycles because of the anticipated initial procedural and workload problems within the FAA for the implementation of the rule, period of time for the preparation and dissemination of the form, and need for correction of invalid or outdated information by the persons reporting. However, the FAA expects to continue its consideration of the length of the reporting period and, if feasible, to reduce it in the future to a shorter period, such as 30 or 60 days, as recommended by comments.

It has been determined, in the light of the comments received, that the amendments to Parts 13 and 47, requiring the submission of information contained in Part 1 of AC Form 8050-73 be adopted as proposed. However, it has been determined that the amendment to Part 91 would provide for the submission of the information contained in Part 2 of that form on a voluntary basis. Accordingly, new § 91.53 as written provides that the aircraft owner should, but is not required to, submit the information contained in Part 2 of the report. It is expected that the voluntary reporting of this information under § 91.53 will provide sufficient data to satisfy the FAA needs without the necessity to make this provision mandatory.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

In consideration of the foregoing, Parts 13, 47, and 91 of the Federal Aviation Regulations are amended, effective March 7, 1970.

These amendments are made under the authority of sections 103, 307, 311, 312, 313(a), 501, 601(a)(6), 609, and 901 of the Federal Aviation Act of 1958 (49 U.S.C. 1303, 1348, 1352, 1353, 1354(a), 1401, 1421, 1429, 1471), section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)), and § 1.4(b)(1) of the Regulations of the Office of the Secretary of Transportation.

NOTE.—The recordkeeping and reporting requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

Amendment 91-73

Special Flight Authorizations for Foreign Civil Aircraft, Conditions and Limitations

Adopted: February 5, 1970 **Effective: March 13, 1970**

(Published in 35 F.R. 2818, February 11, 1970)

The purpose of these amendments is to establish conditions and limitations under which special authorizations may be issued for foreign civil aircraft operated in the

United States for market sales or surveys, and to delete the requirement that U.S. aircraft engine manufacturers use only type certificated engines in type certificated aircraft when operated solely for market surveys, sales demonstrations, or customer crew training.

These amendments are based on a notice of proposed rule making (Notice 69-35) which was published in the Federal Register on August 16, 1969 (34 F.R. 13329).

All of the comments received in response to Notice 69-35, with the exception of one, concurred without reservation in the adoption of these amendments. It should be pointed out that under these amendments, § 91.28(b)(5)(i) does not prevent U.S. manufacturers from marketing foreign civil aircraft. These amendments allow foreign civil aircraft to be flown for market sales or surveys without regard to whether or not the operator is the same person as the applicant. Therefore, a U.S. manufacturer may operate the aircraft under the authorization without being the applicant.

As amended, § 21.195(b) permits U.S. aircraft engine manufacturers to conduct market surveys and the other operations specified in the regulation with a type certificated aircraft, whether or not the engines are type certificated. In addition, minor editorial word changes have been made in paragraph (b) for purposes of clarification.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given all relevant matter presented.

In consideration of the foregoing, Parts 21 and 91 of the Federal Aviation Regulations are amended, effective March 13, 1970.

These amendments are issued under the authority of sections 313(a), 601, 603, and 610(b) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1430(b)) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-74

Maintenance Inspections

Adopted: February 24, 1970 **Effective: March 5, 1970**

(Published in 35 F.R. 4116, March 5, 1970)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to clarify the language requiring an inspection on aircraft operated to give flight instruction for hire.

Section 91.169(b) states that no person may operate an aircraft carrying any person (other than a crewmember) for hire or to give flight instruction for hire unless, within the preceding 100 hours of time in service, it has been inspected and approved for return to service in accordance with Part 43.

With respect to flight instruction, this regulation has been misunderstood by many persons, including members of private flying clubs, to mean that they could not receive flight instruction in an aircraft owned or leased by them if the flight instructor received compensation for his services, unless the aircraft had met the 100-hour inspection requirement. However, this is not the intent of the regulation. The purpose of this amendment is to clarify the regulation and, as intended, limit the applicability of the inspection requirement to those instances in which the person providing flight instruction for hire also provides the aircraft in which the instruction is given.

In addition, the language of § 91.169(b) is amended to clarify the ambiguity as to which specific inspection satisfies the requirement. As presently written, the aircraft must have been inspected and approved for return to service within the preceding 100 hours of time in service, in accordance with Part 43. There is an inference that the required inspection must be the 100-hour inspection, but the regulation was not intended to be so restrictive. The requirement for an inspection may be satisfied by a 100-hour inspection, an annual inspection, or an inspection for the issue of an airworthiness certificate, if the inspection was within the preceding 100 hours of time in service, and this amendment so provides.

Since this amendment merely clarifies existing language in the Federal Aviation Regulations, and imposes no additional burden on any person, I find that public notice and procedures are not necessary, and that good cause exists for making it effective in less than 30 days.

In consideration of the foregoing, § 91.169(b) of the Federal Aviation Regulations is hereby amended, effective March 5, 1970.

This amendment is issued under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421(a)), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–75

Installation and Operating Requirements for Oxygen Equipment and Supply

Adopted: April 13, 1970 **Effective: June 17, 1970**

(Published in 35 F.R. 6385, April 21, 1970)

The purpose of these amendments to Parts 23 and 91 of the Federal Aviation Regulations is to provide standards for the installation of oxygen equipment on airplanes certificated under Part 23 and to provide operating requirements for the use of oxygen in aircraft governed by the general operating and flight rules of Part 91.

These amendments are based on, and reflect comments received in response to the notice of proposed rule making published in the Federal Register (32 F.R. 10602) on July 18, 1967, and circulated as Notice 67–30.

Numerous comments were received in response to Notice 67–30. A number of changes have been made to the proposed rules on the basis of the comments received and further review within the FAA. These changes and the FAA's disposition of the public comments are discussed hereinafter. Editorial revisions have also been made to a number of the proposals for the purpose of clarification. Insofar as these changes are concerned, no substantive change to the proposals is intended. Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matters presented. Except as modified by the following discussions, the reasons for these amendments are those contained in the notice.

Several commentators objected to the proposal on the basis that it would require the owners of small airplanes that are not designed to operate at altitudes where oxygen is required to purchase expensive oxygen equipment for their airplanes. This, however, is not the case. The proposal would not require the installation of oxygen equipment on all small airplanes. Oxygen equipment would have to be installed only on small airplanes that are to be used in operations conducted at the altitudes for which supplemental oxygen must be provided and used in accordance with the requirements of Part 91. The need for oxygen in such operations far outweighs any economic burden that may be involved in the installation and maintenance of the oxygen equipment.

One commentator recommended that the dissemination of educational material describing conditions leading to hypoxia and its effects would be more appropriate or more effective than imposition of the proposed rules. The FAA has already taken steps, through the following publications and programs, to indoctrinate pilots on the subject: (1) Advisory Circular 91–8, "Use of Oxygen by General Aviation Pilots/Passengers," (2) Office of Aviation Medicine Report AM 66–28, "Oxygen in General Aviation," (3) Aviation Medical Education Series No. 4.1, "Oxygen and the Potent Pint," and (4), an oxygen indoctrination program at the Civil Aeromedical Institute, available to all civil aviation pilots and widely publicized in civil aviation magazines and other publications. While the FAA agrees that such educational material is a factor in improving safety, it is not a substitute for the proposed regulations.

Several commentators suggested revising proposed § 23.1441(a) which states that there must be a means to allow the crew to readily determine during flight the quantity of oxygen available in each source of supply. It was recommended that the proposal be changed to specify a means for determining the remaining number of hours of available oxygen. These commentators are primarily concerned with the pressure gauges being furnished with oxygen systems. They believe that a pressure gauge is not an adequate instrument for determining the quantity of oxygen available. The FAA does not agree. In most instances, a pressure gauge in the oxygen system will indicate the quantity of oxygen available in the source of supply. If, in any particular installation, it is determined that a pressure gauge would not satisfy the requirement, then some other means to allow the crew to determine, during flight, the quantity of oxygen available in each source of supply would have to be provided. In any event, the remaining number of hours of available oxygen can be readily obtained once the quantity of oxygen available in each source of supply is known. In response to numerous comments, § 23.1441 has been revised to make it clear that portable oxygen equipment may be used to meet the supplemental oxygen requirements.

One commentator suggested incorporating a provision in § 23.1443 which would require compliance with the proposed graph (depicting oxygen mass flow rates) only up to the cruising altitude for which type certification of the airplane is desired. The recommendation is premised on the contention that it is unnecessary and economically unreasonable to install oxygen equipment capable of a specified mass flow rate at 40,000 feet if the airplane will be operated at a much lower altitude. The purpose of § 23.1443 is to show the minimum oxygen mass flow rates which would be required for each occupant of an airplane at the corresponding cabin pressure altitudes. The applicant for a type certificate would not be required to install oxygen equipment capable of supplying the minimum oxygen mass flow rates for the entire range of cabin pressure altitudes shown in the graph unless his airplane is capable of operating through the entire range. Accordingly, § 23.1443 is revised to state that the oxygen equipment installed in the airplane must be capable of supplying to each occupant the appropriate flow of oxygen for all altitudes up to and including the maximum operating altitude of the airplane.

One commentator recommended that the altitude limit of 12,000 feet specified in proposed § 91.32(a)(1) be increased to 12,500 feet to provide an additional westbound VFR cruising altitude. This recommendation has merit. The Federal Aviation Regulations require that an operator must maintain a level cruise flight at any even thousand feet MSL altitude plus 500 feet when operating below 18,000 feet MSL and on a magnetic course 180 degrees through 359 degrees. Accordingly, an increase in the proposed minimum altitude of 12,000 feet to 12,500 feet would provide an additional westbound VFR cruising altitude level without the need for oxygen equipment. The addition of 500 feet to the proposed minimum altitude limit would not have any significant effect on safety. Consistent with that change, it is appropriate to increase the minimum cabin pressure altitude limit for which oxygen mass flow rate is prescribed in § 23.1443 to show 0.8 LPM at 12,500 feet.

It was recommended that paragraphs (b) and (c) of proposed § 23.1447 be revised to specify that they are applicable only to pressurized airplanes. The commentator asserts that these proposals should not apply to non-pressurized airplanes which are not subject to sudden-decompression occurrences. The FAA agrees and this has been made clear in the final rule. In addition, further FAA studies have shown that for those pressurized aircraft designed to operate at 25,000 feet (MSL) or below, the pilot will have sufficient time to descend to safer altitudes prior to the onset of any symptoms of hypoxia in the event of a sudden decompression. For this reason, the proposal in paragraph (b) of § 23.1447, requiring an oxygen supply terminal and unit of oxygen dispensing equipment within reach of each member of the required minimum flight crew for those airplanes designed to operate at flight altitudes up to and including 25,000 feet, is unnecessary and has not been adopted.

Several commentators recommended that the proposed altitude limits of § 91.32(a), at which supplemental oxygen must be provided and used by the flight crew, be lowered to conform with the requirements of FAR Part 121. In support of the recommendation, it is stated that the change is in the interest of uniformity. Under this recommendation, the proposed cabin pressure altitude values in § 91.32(a) at which oxygen must be used by the flight crew of 12,000 feet and 14,000 feet would be reduced to 10,000 feet and 12,000 feet, respectively. However, the FAA is not persuaded that uniformity in the oxygen requirements of Parts 91 and 121 is either necessary or apropriate. Moreover, a change based on this recommendation would constitute a substantive change in the proposal outside the scope of Notice 67-30. At the present time, there are no oxygen requirements whatever in Part 91 for general aviation operations and the proposed requirements constitute an important step forward in this key regulatory area. The FAA does not, therefore, consider that it would be appropriate to delay the issuance of these proposed rules. Nevertheless, the FAA will continue to monitor general aviation operations insofar as these oxygen requirements are concerned and if it is determined that the altitudes in § 91.32(a) should be lowered, additional rule making will be undertaken.

In contrast to the previous comments, a number of commentators recommended that the proposed altitudes in § 91.32(a) be raised by several thousand feet and that pilots be permitted optional use of oxygen equipment at lower altitudes. The FAA disagrees. Studies have indicated that hypoxia symptoms can develop within 30 minutes at altitudes between 15,000 feet and 18,000 feet. These symptoms include impairment of judgment and vision, excessive self-confidence, disregard for sensory perceptions, poor coordination, sleepiness, dizziness, personality changes, and cyanosis (blueing). The FAA does not believe that a pilot can predict, with any certainty, that he or his passengers would not develop such symptoms during any flight at those altitudes, notwithstanding previous operations which may have been conducted without adverse physical affects.

There were a large number of comments recommending that the proposal be revised to permit the use of quick donning masks. The recommendations generally followed the requirements currently set forth in Part 121 of the FARs. On the basis of the comments received, the FAA is persuaded that on any aircraft having more than one pilot at the controls, it is not necessary that one pilot breathe oxygen at all times at flight levels below flight level 410 if each flight crewmember at the controls has a quick donning type oxygen mask. However, since safety in flight, in the event of a sudden decompression, is dependent upon the rapidity with which the pilot can place the quick donning mask on his face from its ready position, the quick donning mask should be permitted only on the condition that it can be positioned, with one hand, properly secured, sealed, and supplying oxygen, and within 5 seconds. Safety considerations require, however, that one pilot wear and use his oxygen mask when the other flight crewmember leaves his duty station at an altitude above flight level 350.

Several commentators were concerned about the quantity of supplemental oxygen that would be required for their operations in order to comply with the proposal of Part 91. It was indicated that compliance with the regulations as proposed might mean that the amount of oxygen employable in the event of any emergency would be insufficient and requested a rule change to permit the conservation of the quantity of available oxygen. In support of their request, it was also noted that relatively few airports are equipped for servicing oxygen equipment. In this connection, it was recommended that the proposal be changed to allow the use of oxygen equipment that would be automatically turned on in the event of decompression when the cabin altitude reached 14,000 feet. The FAA considers that this proposal has merit and proposed § 91.32 has been revised accordingly. Such a requirement would permit conservation of oxygen supply until actually needed and would have no adverse effect on safety.

One commentator suggested that it would be more practicable to use the term "flight level" instead of "mean sea level" in the proposals. The recommendation of the commentator is valid with respect to the relatively high altitudes. FAR § 91.81 prescribes altimeter settings for cruising altitude or flight level of the aircraft, as the case may be. The demarcation limit is 18,000 feet, at and above which the lowest usable flight level is determined by atmospheric pressure in the area of operation. In view of the foregoing, the assigned values for the flight altitudes at and above 18,000 feet are provided in terms of "flight levels" in the final rule. All other references to altitudes in the regulation are provided in terms of MSL (mean sea level).

Finally, proposed § 91.32 has been revised to make it clear that it applies only to aircraft registered in the U.S. It was not the intent of the notice and the FAA does not consider it necessary or appropriate to apply this rule to foreign aircraft.

In consideration of the foregoing, Parts 23 and 91 of the Federal Aviation Regulations are amended, effective June 17, 1970.

This amendment is made under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1423) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-76

Requirements for Attitude Instrument Replacement of Rate-of-Turn Indicator

Adopted: April 29, 1970 **Effective: May 9, 1970**

(Published in 35 F.R. 7108, May 6, 1970)

The purpose of these amendments to Parts 25, 91, and 121 of the Federal Aviation Regulations is to require that the third attitude indicating instrument system be capable of providing reliable reference through 360° of pitch and 360° of roll when that instrument replaces the gyroscopic rate-of-turn indicator, as authorized by Amendments 25-22, 91-71, and 121-57 (35 F.R. 304).

In adopting those amendments, the FAA reached the conclusion, and all commentators apparently agreed, that in large transport category airplanes the rate-of-turn indicator is no longer as useful as an instrument which gives both horizontal and vertical information. However, for such a conclusion to be valid, in those cases in which the third attitude indicating system is to be used as a replacement for a gyroscopic rate-of-turn instrument, it must be capable of reliable reference through 360° of pitch and roll so it can be used for recovery from extreme attitudes. While such a requirement is deemed essential for reasons of safety, it is not expressly stated in the rule prescribed in Amendments 25-22, 91-71, and 121-57. This clarifying amendment makes such a requirement explicit.

In addition to the use of full range gyroscopic attitude instruments, it is the intent of this amendment to permit the use of an instrument which uses controlled precession of short duration at about 90° of pitch to achieve the required range, if the instrument provides a horizon display before and after the precession which is sufficiently accurate to enable recovery to be made to approximately level flight.

Since these amendments are clarifying in nature, I find that public procedure is unnecessary and good cause exists for making them effective on less than 30 days' notice.

In consideration of the foregoing, Parts 25, 91, and 121 of the Federal Aviation Regulations are amended, effective May 9, 1970.

These amendments are issued under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, and 1423), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-77

Cockpit Voice Recorders in Helicopters

Adopted: May 4, 1970 **Effective: July 8, 1970**

(Published in 35 F.R. 7292, May 9, 1970)

The purpose of these amendments to Parts 29, 91, 121, and 127 of the Federal Aviation Regulations is to require the installation and use of approved cockpit voice recorders in large transport category helicopters that are operating under Part 121 or 127, and to prescribe in Part 29 standards governing cockpit voice recorder installations. These amendments were proposed in Notice 69-15 issued on March 29, 1969, and published in the Federal Register (34 F.R. 6196) on April 5, 1969.

Certain comments received questioned the value of cockpit voice recorders in helicopters. It should be pointed out that information provided by the recorders will be extremely useful in determining the probable cause of accidents involving helicopters and thereby assist the FAA in taking appropriate accident prevention measures in the interest of safety.

However, as some comments pointed out, if use of only a cockpit mounted area microphone is permitted by the regulations, the recording of voice communications may be rendered unintelligible due to ambient noise levels on some helicopter flight decks and inherent helicopter vibration. In view of this comment, the rule has been changed to permit the installation of continually energized lip microphones or voice-actuated lip microphones at the first and second pilot stations as an alternative to installation of a cockpit-mounted area microphone.

Comments also suggested that voice recorders are not generally available which are constructed to meet the challenges of helicopter vibration and cockpit noise levels, and therefore the compliance date should be extended to allow development of appropriate recorder systems. The FAA has concluded that to ensure the availability of equipment and allow for realistic aircraft installation schedules, will require more time for compliance than proposed. Therefore, the compliance date is established as one year, rather than six months, after the effective date of this amendment.

The National Transportation Safety Board suggested that all turbine-powered aircraft with 10-passenger capacity operated on a scheduled basis be required to have a cockpit voice recorder, and another comment expressed the opinion that all aircraft in scheduled operations should be so equipped. Another comment stated that a flight recorder would provide more useful helicopter accident investigation information than a voice recorder, and if only one recorder is to be required, it should be the former. However, we have not been able to consider these comments in this rule-making action because they are outside the scope of the Notice.

The Air Line Pilots Association (ALPA) supported the requirement for the cockpit voice recorder, but opposed the use of any flight or voice recorder information for punitive action in any way whatsoever by a government agency, air carrier, or other person. The agency is cognizant of the ALPA's interest and concern regarding the use of voice recorder tapes for purposes other than the investigation of aircraft accidents. Since this comment reiterates the basis for a petition filed by them with the agency, it will be considered in connection therewith.

Interested persons have been afforded an opportunity to participate in the making of this regulation and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Parts 29, 91, 121, and 127 of the Federal Aviation Regulations are amended, effective July 8, 1970.

These amendments are issued under the authority of sections 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, 1423, and 1424), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–78

Terminal Control Areas

Adopted: May 19, 1970 **Effective: June 25, 1970**

(Published in 35 F.R. 7782, May 21, 1970)

The purpose of these amendments to the Federal Aviation Regulations is to prescribe air traffic rules for the separation, segregation and control of aircraft operated within "Terminal Control Areas."

The procedural history preceding the issuance of this rule has a direct effect upon the development of this amendment, and to the extent deemed necessary for purposes of this rule-making action, is summarized as follows: On September 30, 1969, the FAA issued a Notice of Proposed Rule Making (69-41, 34 F.R. 15252) in which it defined the concept of a terminal control area. It was indicated in the notice that the FAA would issue separate notices proposing airspace configurations at 22 designated terminal areas. To insure that the FAA obtained maximum public participation in this undertaking, 22 separate public hearings were conducted at the designated areas to openly discuss these proposals with the local user groups. As a result of these public hearingss and the views expressed in the written comments to the docket, which exceeded 1,800 in number, it became evident to the FAA that even though there was general agreement among individual users and user groups that something must be done to create a safer environment in the congested terminal areas, there was substantial disagreement over the best method to achieve this result.

Because of the public reaction to the proposal issued in Notice 69-41, the entire matter was carefully restudied. During the course of this study, careful analysis was made of the comments received from the public, to the end that a terminal area plan would be designed that would provide within the present air traffic control capability, the safest and most efficient terminal area environment possible.

On March 11, 1970, Notice 69-41B was issued (35 F.R. 4519). In that document the FAA explained in detail that because conditions vary sufficiently among the 22 hub airports, it would be inappropriate to have one set of rules applicable to all 22 locations regardless of the volume and complexity of the air traffic situation. For the purpose of designing operating rules that were better scaled to the individual needs of particular locations, the FAA divided the terminal control area proposed for these locations into two groups, designated as Group I and Group II.

At this point, it appears appropriate to consider one of the more common written complaints made to the FAA by commentators in response to Notice 69-41B. These commentators, in varying degrees, stated that the proposal indicated favoritism toward the airlines over general aviation. Favoritism is not involved since that Notice has been designed solely because of safety requirements. The Group I Terminal Control Areas represent 10 of the busiest locations in terms of aircraft operations and passengers carried, and it is necessary for safety reasons to have stricter requirements for operation within the terminal control areas at those locations than at other locations. The density of air traffic at all Group I locations consists of at least 300,000 operations per year, with more than 60 percent of this traffic involving air carrier operations. These Group I locations have a yearly minimum of 3.5 million enplaned passengers. It was noted in Notice 69-41, when referring to the Midair Collision Study Program, that 97 percent of the terminal area incidents occurred below 8,000 feet above ground level, and that the vast majority involved conflict between general aviation aircraft and either an air carrier, military or another general aviation aircraft. It was also highlighted that the mix of uncontrolled VFR and controlled IFR aircraft was a basic causal factor of these air traffic conflicts. Since at the Group I locations the density of air traffic is greater, and 60 percent of this traffic involves air carrier passenger operations, conflicts resulting from the above described mixture of air traffic have the greatest potential to cause a midair collision of catastrophic proportions. Accordingly, the FAA deemed it essential, at Group I locations, to impose maximum safety requirements. Thus, traffic will be segregated based on more stringent equipment and piloting requirements at the designated Group I Terminal Control Areas.

The Group II locations are generally less busy in terms of aircraft operations and passengers carried. There is small percentage of use by air carriers and a larger use by slower, more maneuverable aircraft at these locations. Based on these factors, and because the speed and operating characteristics are not as critical from an operational or air traffic standpoint, less stringent equipment and piloting requirements are needed to achieve a safe environment in Group II Terminal Control Areas.

Many of those who claimed that the FAA was favoring the airlines over general aviation linked the transponder requirement with the criticism of favoritism. As the FAA understands this criticism, it is claimed that since transponders and positive control go hand in hand, the light airplane operator will be required to unnecessarily purchase expensive equipment or refrain from operating within a terminal control area; and since the VFR pilot can maintain separation from other aircraft using the see and be seen principle, he is being unjustifiably discriminated against. At this point, it appears necessary to again emphasize that near misses and midair collisions have resulted primarily because of the random mix of uncontrolled VFR and IFR traffic. Because this finding has always been supported by the results of appropriate accident investigation studies, near miss report studies, and independent expert opinion, the FAA rejects the recommendation that aircraft separation unilaterally achieved by a VFR pilot using the see and be seen principle will meet the acceptable safety standard required for operation within a Group I Terminal Control Area environment. Additionally, because the Group I Terminal Control Area environment primarily accommodates a more sophisticated type aircraft, each of which will be assured of positive separation from the other aircraft, the benefits of immediate identification of aircraft and target reinforcement offered by a transponder will obviously enhance safety. Also of importance is the fact that much of the so-called general aviation fleet is presently equipped with transponders and satisfactorily satisfies the equipment requirements for operating within a Group I Terminal Control Area.

Finally, the FAA, in an attempt to impose as little restraint as possible upon the operators of aircraft, deliberately separated out for more lenient operating requirements (including that of not requiring a transponder) 14 locations now designated as Group II Terminal Control Areas. The FAA will continue to study the 24 designated Group I and II locations and, if appropriate, may reclassify any of these locations or remove them from regulatory restraint.

One other general type criticism of the transponder requirement related to an opinion that the returns would saturate the ground radar. The fear was expressed that numerous secondary radar returns will block out the scope completely. This problem was anticipated, and both electronic and procedural techniques exist to avoid the occurrence of such an event.

The balance of critical comments to this Notice generally fall into four categories:

1. The lack of standardization of airspace configuration and the complexity of the Terminal Control Areas.
2. The imposition of an additional, unnecessary workload on the controller.
3. The compression of VFR traffic at the edges and under the Terminal Control Areas.
4. The preference for climb and descent corridors.

Each criticism will be responded to specifically hereunder.

1. *The lack of standardization of the airspace configuration and the complexity of the Terminal Control Areas.*

In general, pilots who made this type of comment were of the view that unless there is some standardization of the airspace configurations, a pilot may not be aware when he inadvertently penetrates a terminal control area, or know when to vary altitudes in order to stay beneath the floors of the terminal control area. It was asserted that a lack of standardization into two or three basic types will result in inevitable confusion and cause the entire operation to be too complex. In order to effectively design a safe and efficient terminal control area, it is necessary to tailor the airspace configuration to the particular needs of that area. Included in each consideration are the types of aircraft used and nature of air operations at the airports within a terminal control area, the adaptation of the facilities at the airports and the navigational aids available for use at that location, and the air traffic capability to meet the needs of the terminal control area concept. Since each of these factors may vary at different locations, the design of each terminal control area airspace configuration must vary. Accordingly, there can be little, if any, standardization in the airspace configurations. The FAA recognizes that as a result of tailoring the airspace to the specific needs of each location, some further complexity has been added to the terminal control area configuration. However, to ease the situation and assist the pilot, new local area charts will be published at each location where a terminal control area is designated. The sectional and en route charts will carry notations advising the existence of terminal control areas, and a description and graphic illustration will be inserted in the Airman's Information Manual. Also, the FAA is planning an educational program to familiarize aviation personnel with the terminal control area concept and operation.

2. *The imposition of an additional, unnecessary workload on the controller.*

In general terms, those making this type of comment expressed the fear that an additional controller workload would naturally result if VFR traffic was placed under positive control. This, it was asserted, would have the effect of eliminating most of the VFR traffic since the controller would first handle the IFR traffic. Again, it must be emphasized that the requirements for terminal control areas are established for reasons of safety. If the requirements of the system should prevent the present controller force from handling as much traffic as it did before the terminal control area concept became operational, then the reduction in capacity must be made for the benefit of safety. The metering effect may result in some increased delays, but this will be more than offset by the assurance for increased safety. Regardless of whether this rule will result in increased delays, all traffic will continue to be handled on a "first-come first-served" basis.

3. *The compression of VFR traffic at the edges and under the Terminal Control Areas.*

The Notice has been criticized because in the opinion of some commentators the rule, if adopted as proposed, will create an undue compression of VFR traffic at dangerously low altitudes under the shelf of the Terminal Control Area. Mixed with this position is the added claim that the problem of congestion will be further increased by the compression of traffic at the VFR entry points. The problem of compression at the sides and under the terminal control areas has been often mentioned and discussed, as has the problem concerning congestion at the entry points. If entry points are recommended, they will not necessarily be used as funneling points for VFR traffic nor will their use be mandatory. They will be published so the pilot can report with respect to them and aid the controller in maintaining a smooth flow of traffic. There will be some compression under the TCA shelves. However, every attempt will be made to establish the floors of terminal control areas as high as possible. Also, a 200-knot speed limit has been imposed in the airspace underlying the terminal control areas. This speed limit also applies to the free VFR corridors that may be designated through some of the areas.

4. *The preference for climb and descent corridors.*

Numerous individuals and organizations have recommended that the FAA adopt a "climb and descent corridor" concept rather than a "wedding cake" type configuration as the basic design figure for the airspace allocation. Those recommending adoption of the corridor concept have provided the FAA with suggested dimensions of the corridors. Some have recommended that the corridors take the form of very narrow extensions that start at the end of each airport runway and extend outwardly and up to certain limits. Others, in varying degree, have recommended corridors that start at the end of each runway and then fan up and out at various angles to a given distance from the airport. In some examples provided the FAA, the suggested corridors fan out to such a degree that the airspace described resembles that of a "wedding cake" profile. The FAA believes that much of the controversy involved in this subject has resulted from involvement with semantics rather than approaching the problem head-on to obtain a solution. What is really necessary is to allocate that amount of airspace necessary at a particular locality to implement the terminal control area concept. After study, it is concluded that the overall airspace description of a terminal control area may be best described as a "corridor-cake" type configuration, because at any given location the airspace allocation may be part wedding cake and part corridors or, for that matter, any type of airspace configuration that will satisfy the requirements of a terminal control area. It is the view of the FAA that the "corridor-cake" concept will provide the necessary flexibility and capability to enable air traffic control to handle a greater variety of traffic mix without suffering a drastic loss of capability. If the FAA adopted a rule that only "climb and descent corridors" would be used in a terminal control area, it would result in a reduced air traffic control capability to maintain an efficient flow of air traffic and it would not provide the airspace necessary to effectively and efficiently satisfy the need for vectoring, sequencing and metering the flow of air traffic at many of the 24 high density terminal areas under consideration. Most certainly, the use of corridors alone would result in a drop in the capacity for most terminal areas because of the different performance characteristics of the various aircraft that would be using the corridors.

Several commentators questioned the requirement that helicopters have operable VOR or TACAN receivers since these aircraft operate in a unique manner and at low altitudes where no signal coverage exists. Because of the uniqueness of the helicopter and the manner in which it is operated, the proposal has been modified to exempt helicopters from the requirement.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matters presented.

In consideration of the foregoing, Parts 1, 71, and 91 of the Federal Aviation Regulations are amended, effective June 25, 1970.

Sections 307(a) and (c), and 313 of the Federal Aviation Act of 1958; (49 U.S.C. 1348(a) and (c), 1354(a), Section 6(c) of the Department of Transportation Act; (49 U.S.C. 1655(c)).

Amendment 91–79

Altimeter System Requirements

Adopted: June 9, 1970 **Effective: July 17, 1970**

(Published in 35 F.R. 9922, June 17, 1970)

The purpose of this amendment to § 91.170 of Part 91 of the Federal Aviation Regulations is to revoke paragraph (b) which permitted the postponement of the first test and inspection of the altimeter system for airplanes under annual inspection until the first annual inspection after July 31, 1967.

This amendment is based on a Notice of Proposed Rule Making (Notice 69-50) published in the Federal Register on November 14, 1969, (34 F.R. 18252). Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all relevant matter presented.

Five comments were received in response to Notice 69-50; four of which were generally in favor of the proposal. The one commentator who opposed revocation of § 91.170(b) stated that if the proposal is adopted, the regulations would not provide a means by which an airplane manufacturer may "start the clock" on new airplanes. The commentator states that while the airworthiness certification requirements of Parts 23 and 25 of the FAR's provide airworthiness standards for static pressure system installations, they are void of requirements pertaining to altimeter airworthiness standards. He indicates that in his situation altimeters are tested and marked in accordance with Appendix E to FAR 43. He further points out that variables in assembly schedule, shelf-stocking, tests and calibration, and flight time adjustment often yield several months variations from airplane to airplane between the date of altimeter calibration, the date of static system tests, and the date of the issuance of an airworthiness certificate. Thus, if § 91.170(b) is revoked, it would create an administrative burden for the manufacturer of attempting to relate the dates of the altimeter instrument calibration and static system leak tests to the date of issue of individual airworthiness certificates.

Section 91.170(a) is an operating regulation and it prohibits the operation of an airplane in controlled airspace under IFR unless, within the preceding 24 calendar months, each static pressure system and each altimeter instrument has been tested and inspected and found to comply with Appendix E of Part 43 of the FAR's. Thus, to meet this requirement, the owner of an airplane must know the date that the altimeter and the static systems on that airplane were last inspected in accordance with Appendix E of Part 43 in order to determine when the next inspection is due. The FAA is aware that the accuracy of altimeters is affected by environmental conditions regardless of whether they are installed in an airplane or are part of the shelf-stocking, and it is for this reason that the regulations contain the 24-month inspection and test requirement. If safety and effective utilization of the airspace are to be achieved, all airplanes that are operated in controlled airspace under IFR must meet the same altimeter system equipment standards. It would not be in the interest of safety and as Notice 69-50 clearly indicates, it was not intended to indefinitely permit newly manufactured airplanes to operate in controlled airspace under IFR for periods of time, up to one year, without assuring that the installed altimeter and static pressure systems have met the tests and inspections prescribed in Appendix E of Part 43 within the preceding 24 months. Thus, while the revocation of § 91.170(b) may represent an administrative burden for the commentator, this burden is far outweighed by the need in the interest of safety to assure that the altimeters on all airplanes have met the required tests before being operated in controlled airspace under IFR.

One of the commentators also proposed that the test and inspection period required by § 91.170(a) be reduced from 24 months to 12 months. The FAA does not agree. In addition to the fact that such a change would be outside the scope of Notice 69-50, service experience under this regulation has not shown that the inspection and tests need be performed at intervals less than 24 months.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended by revoking paragraph (b) of § 91.170, effective July 17, 1970.

This amendment is made under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421) and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-80

Revisions to Visual Aids Tables

Adopted: August 11, 1970 **Effective: August 18, 1970**

(Published in 35 F.R. 13115, August 18, 1970)

The purpose of these amendments to Parts 1 and 91 of the Federal Aviation Regulations is to revise the inoperative component and visual aid tables in § 91.117 in accordance with recent changes in visual aids and to add abbreviations of these new aids to Part 1.

The U.S. Standard for Terminal Instrument Procedures (TERPS) contains criteria which are used to formulate, review, approve, and publish procedures for instrument approach and departure of aircraft to and from civil and military airports. TERPS was issued in September 1966, and has been adopted by the Departments of the Army, Navy, Air Force, and the U.S. Coast Guard. The second edition of TERPS, which was adopted on February 6, 1970, is set forth in FAA Handbook 8260.3A. Copies may be obtained (for a nominal fee) by written request to the Manager of Headquarters Operations, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20590. Copies of TERPS can be examined at any Regional or Area Office of the FAA.

One objective of TERPS is to reduce chart clutter and enhance graphic presentation of terminal procedures. Therefore, only the lowest landing minimums are published and portrayed in the instrument approach procedure charts. The lowest minimums are determined with all the components and visual aids of the instrument approach system operating. To reduce chart clutter, the standard adjustments of landing minimums for inoperative components or aids, as prescribed in TERPS, are not portrayed on the charts, but are set out in tables in § 91.117 of the Federal Aviation Regulations.

Paragraph 343 of Handbook 8260.3A provides for reductions in visibility requirements for approach lighting systems that were not previously included in the standard lighting systems. Descriptions of lighting systems may be found in Appendix 5 of the TERPS Handbook. This amendment makes necessary revisions to the inoperative component and visual aid tables in § 91.117 to include these new lighting systems and the adjustments to landing minimums which must be made when the aid is inoperative or not usable.

The changes are as follows:

1. The short approach light system (SALS) is replaced by the simplified short approach light system with runway alignment indicator lights (SSALSR) in the table in § 91.117(c)(1). Until such time as existing SALS installations are converted to SSALSR,

the definition of SALS will remain in Part 1 and the adjustment to landing minimums for an inoperative SALS will appear on the instrument approach procedure charts for airports where SALS is installed.

2. The medium intensity approach light system with runway alignment indicator lights (MALSR) is added to the table in § 91.117(c)(1).

3. The short approach light system (SALS) is deleted from the table in § 91.117 (c)(3).

4. The simplified short approach light system (SSALS), SSALSR, and MALSR are added to the table in § 91.117(c)(3).

5. SSALSR and MALSR are added to the table in § 91.117(c)(4).

This amendment also adds the definitions of these visual aids to § 1.2 of Part 1.

The visibility reductions associated with these visual aids, and the visibility increases which must be made when they are inoperable or unusable, have been discussed in meetings with industry and aviation associations in connection with the revision of TERPS. Several of the new lighting systems are already in use.

As a situation exists which demands immediate action in the interests of safety in air commerce, I find that compliance with the notice and procedure provisions of the Administrative Procedure Act is impracticable and that good cause exists for making this amendment effective within less than 30 days from publication.

In consideration of the foregoing, Parts 1 and 91 of the Federal Aviation Regulations are amended, effective August 18, 1970.

These amendments are made under the authority of §§ 307, 313, and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1421) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-81

Extension of Compliance Date for Installation of Altitude Alerting Systems

Adopted: October 23, 1970 **Effective: October 30, 1970**

(Published in 35 F.R. 16793, October 30, 1970)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to extend the compliance date for installation of the altitude alerting system or device required by § 91.51.

Section 91.51 was adopted by Amendment 91-57 (33 F.R. 12180), and became effective September 28, 1968. It states that after February 28, 1971, no person may operate a turbojet powered U. S. registered civil airplane unless that airplane is equipped with an approved altitude alerting system or device which is in an operable condition and meets certain specified requirements.

The FAA has received several petitions for rule making from air carriers and other interested persons, asking that the compliance date specified in § 91.51 be extended. The petitions state that there have been unforeseen problems in the manufacture and distribution of the altitude alerting equipment which seriously affect orderly installations and scheduled operations.

After consideration of the matter submitted in the petitions, the FAA has determined that it is in the public interest to extend the compliance date to allow for more efficient scheduling of installations and operations. Although one of the petitioners requested an extension of the compliance date of 1 year, we believe that an extension of 6 months is sufficient to allow time for compliance. Accordingly, this amendment changes the compliance date specified in § 91.51 from February 28, 1971, to August 31, 1971.

Since this amendment does not change the existing rule, but merely extends the time for compliance, I find that public notice and procedure thereon are not necessary, and that the amendment may become effective in less than 30 days.

In consideration of the foregoing, § 91.51(a) of the Federal Aviation Regulations is amended, effective October 30, 1970, by striking out "February 28, 1971," and inserting "August 31, 1971," in place thereof.

This amendment is issued under the authority of sections 313(a) and 601(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421(a)). and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-82

Operation of Aircraft by Crewmembers After Consumption of Alcoholic Beverages

Adopted: October 30, 1970 **Effective: December 5, 1970**

(Published in 35 F.R. 17036, November 5, 1970)

The purpose of these amendments to Part 91 of the Federal Aviation Regulations is to prohibit any person from acting as a crewmember of a civil aircraft within eight hours after he consumes any alcoholic beverage.

Interested persons have been afforded an opportunity to participate in the making of these amendments by notice of proposed rule making (Notice 70-22) issued on June 8, 1970, and published in the Federal Register on June 12, 1970 (35 F.R. 9217). The Notice was issued upon a petition dated January 6, 1970 from the Aircraft Owners and Pilots Association that requested the adoption of the rule. Due consideration has been given to all comments presented in response to the Notice.

Approximately 70 comments received, in response to the Notice, in the majority support the FAA's objectives stated in the Notice. A number of commentators were concerned with the problem of enforcement, some asserting that the present rule prohibiting a person from acting as a crewmember while under the influence of intoxicating liquor, plus the rules governing careless or reckless operation, were sufficient to cover all exigencies. However, the FAA believes that the rule now being issued will provide an additional regulatory means to deter persons from serving as a crewmember too soon after or while drinking.

Several of the commentators, both for and against the proposal, asserted that the rule should provide for a longer period of abstention than proposed, such as 12 hours. Thus, one commentator asserted that the proposed rule would be undesirable because air carrier policies and practices providing for longer periods of abstinence go beyond the proposal, and the proposal would therefore tend, in his opinion, to undermine those policies and practices. The FAA has carefully considered what time limit should be proposed and has concluded that an 8-hour rule is appropriate for the deterrence and enforcement purposes involved, as a "rock bottom" minimum beyond which safety would be jeopardized. It must be clearly understood that these amendments are not intended to induce, in any manner, the relaxation of any stricter rules that a number of air carriers and other operators of aircraft have in effect. The FAA is by no means endeavoring to indicate that longer time limits should not be self-imposed, or should be disregarded, by these aircraft operators.

Likewise, it should be noted that the discussions of alcohol and flying, in the Notice and herein, are not intended to indict pilots and other crewmembers as a group. The primary concern, in issuing an additional regulation, is not with responsible crewmembers, but with the small marginal group for whom it is needed. The FAA believes that the regulation will serve as a deterrent for some of the latter group and, when necessary, will be helpful in the enforcement of the regulations against others of this group.

Several commentators asserted that a more precise method of measuring intoxication, such as breath or blood tests, should be included in the regulations. The FAA expects to continue its studies with respect to alcohol and flying, and the related matters of publicity, education, and regulatory establishment of specific blood alcohol levels.

The phrase "under the influence of intoxicating liquor" has been used in § 91.11(a) and its predecessor provision, § 43.43 of Part 43 of the Civil Air Regulations, to denote the prohibited condition. The phrase "under the influence of alcohol" is used instead in the revision of this paragraph. The term "alcohol beverage" has been used in § 121.575 of the Federal Aviation Regulations as well as predecessor provisions from which it was recodified, to denote the item there denied to a person on board an aircraft unless served by the certificate holder. The term "alcoholic beverage" will now be used in § 91.11(a)(1) for consistency.

In consideration of the foregoing, and for the reasons stated in Notice 70-22, paragraph (a) of § 91.11 of the Federal Aviation Regulations is amended, effective December 5, 1970.

(Sections 313(a) and 601 of the Federal Aviation Act of 1958; 49 U.S.C. 1354(a), 1421. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c)).

Amendment 91-83

Approved Aircraft Inspection Programs and Mechanical Reliability Reports

Adopted: December 16, 1970 Effective: December 23, 1970

(Published in 35 F.R. 19504, December 23, 1970)

The purpose of these amendments to Parts 91 and 135 of the Federal Aviation Regulations is to clarify certain provisions of §§ 91.169(c)(4) and 135.57(c) with regard to inspection requirements for small aircraft pursuant to an approved aircraft inspection program, and mechanical reliability reports for multiengine aircraft.

Amendment 135-12 (effective April 1, 1970, and published in the Federal Register on December 3, 1969, 34 F.R. 19130), which adopted additional operating rules for operations conducted for compensation or hire with small aircraft, established a procedure permitting operators of small aircraft to use an approved aircraft inspection program in lieu of the annual, 100-hour, or progressive inspection requirements of §§ 91.169 and 91.171. As stated in the amendment, this provision is tied to the make and model aircraft being used by the certificate holder, and is intended to include aircraft with a maximum certificated takeoff weight in excess of 12,500 pounds but which are permitted to be used in air taxi operations as small aircraft. However, § 91.169(c)(4) as adopted does not make this intent clear, and thus the language of that section is amended to state that aircraft inspected in accordance with an approved aircraft inspection program under Part 135 are not required to comply with the inspection requirements of §§ 91.169 and 91.171.

In addition to the requirements discussed above, Amendment 135-12 also established a requirement in § 135.57 for the submission of mechanical reliability reports. As stated in the preamble to the amendment, this requirement was applicable to multiengine aircraft only. However, the section as adopted recited this limited applicability only in paragraph (a), thus raising questions as to whether or not paragraph (c) was so limited. Accordingly, it is necessary to clarify paragraph (c) to reflect the limited applicability of the section.

Inasmuch as these amendments are clarifying and editorial in nature, I find that public notice and procedure thereon are unnecessary and that good cause exists for making them effective in less than 30 days.

In consideration of the foregoing, Parts 91 and 135 of the Federal Aviation Regulations are amended, effective December 23, 1970.

These amendments are made under the authority of sections 313(a), 601, 603, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1425), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-84

Airport Traffic Areas

Adopted: December 24, 1970 **Effective: February 4, 1971**

(Published in 36 F.R. 43, January 5, 1971)

The purpose of these amendments to the Federal Aviation Regulations is to change the definition of an airport traffic area to include that airspace up to, but not including an altitude of 3,000 feet above the elevation of the airport, and to amend the VFR cruising altitude or flight level rule to conform to the change.

These amendments were proposed in Notice 70-9 and published in the Federal Register on March 7, 1970 (35 F.R. 4262).

Public comments received in response to Notice 70-9 were light and generally favorable. The consensus was that the addition of 1,000 feet to the airport traffic area would add greatly to safety and would not be unduly restrictive. The concept of measuring the airport traffic area from the airport elevation, in order to provide a level and measurable upper limit, was endorsed without reservation. There was some opposition to the proposed amendment based on an anticipated increase in frequency congestion and controller workload. During the development of Notice 70-9, however, the question of controller workload was carefully considered in arriving at an optimum size for airport traffic areas. Although an upward expansion of the area to 3,000 feet would create some increase in controller workload, this increase would be minimal. Expansion beyond the proposed size, however, would probably require an increase in manpower and equipment at most tower locations.

There was also some concern that the expanded area would cause inconvenience to VFR pilots, especially with low ceilings prevailing, and it was recommended that the expanded airport traffic area be designated only at those airports having sufficient high performance aircraft to warrant the change. While this course of action would relieve some of the inconvenience to certain operators, it would complicate the rules far out of proportion to the benefits realized and lead to problems in publication and charting.

The question of safety was raised by some commentators who felt that the increase in the use of 3,000 feet above the surface by traffic overflying the airport traffic area would result in an increase in the risk of collision at that altitude. This would, of course, be true of whatever altitude is used as the upper limit of airport traffic areas. However, the fact that transiting traffic would normally be in level cruising flight, and well clear of traffic pattern aircraft, would add considerably to its safety and minimize the risk of collision.

The Air Transport Association, while supporting the proposal to expand the area, objected to application of the 200-knot speed limit in the expanded area. They suggested that the 250-knot limit for aircraft operating below 10,000 feet obviates the need for the 200-knot airport traffic area limit. Rescission of the 200-knot airport traffic area limitation was recommended. As an alternative, it was recommended that the 200-knot limit not apply above 1,900 feet.

The FAA believes that the airport traffic area speed limit, along with the two-way radio requirement, is an essential part of the airport traffic area regulation, and the benefit to be gained from expanding the area would be substantially reduced if the speed controls were not applicable in the expanded areas.

Interested persons have been afforded an opportunity to participate in the making of these Amendments. Due consideration has been given to all matters presented. In consideration of the foregoing, and for the reasons stated in Notice 70-9, Parts 1 and 91 of the Federal Aviation Regulations are amended as follows, effective February 4, 1971.

Sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a)), and Section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–85

Temporary Flight Restrictions

Adopted: January 25, 1971 **Effective: March 1, 1971**

(Published in 36 F.R. 1467, January 30, 1971)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to prohibit the operation of nonessential aircraft in the vicinity of any incident or event which by its nature may generate such a high degree of public interest that the likelihood of hazardous congestion exists.

This amendment was proposed in Notice 70-19, published in the Federal Register on May 2, 1970 (35 F.R. 7020).

Of the seven comments received to the Notice, only two opposed the proposed rule change. One private citizen believed that no new amendment was required as, in his opinion, the existing regulations were adequate to handle any hazardous situation that might arise.

The other dissenting opinion expressed the fear that the adoption of the rule as proposed would permit the closing of airspace with minimum reason and notification. Also, that the present system of NOTAM dissemination was an inadequate means of notifying pilots of flight restrictions.

It is the opinion of the FAA that in certain instances the temporary closing of airspace may be the only practical means of relieving an extremely hazardous situation. Furthermore, the fact that airmen at times fail to check NOTAMS is not in itself sufficient reason to reject the proposed rule change. In view of the fact that it recent years certain events, including, but not limited to, civil disturbances and major sporting events, have resulted in hazardous concentrations of air traffic, the FAA believes that this amendment is not only desirable but rather a requirement for the furtherance of air safety.

Interested persons have been afforded an opportunity to participate in the making of this amendment. In other respects, for the reasons stated in the preamble to the Notice, the rule is adopted as prescribed herein.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective March 1, 1971.

(Sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348 and 1354), and Section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–86

IFR Operations; Two-Way Radio Communications Failure

Adopted: January 29, 1971 **Effective: February 5, 1971**

(Published in 36 F.R. 2481, February 5, 1971)

The purpose of these amendments to the Federal Aviation Regulations is to clarify the altitude, climb, and descent requirements when two-way radio communications failure is experienced under IFR operations.

The altitude, climb, and descent portions of § 91.127 pertaining to IFR operations in the event of two-way radio communications failure have been in existence essentially unchanged since May 1962. The FAA has received letters and telephone calls indicating a misunderstanding of the altitude, climb, and descent portion of that rule in the event that a pilot operating an aircraft that is enroute to its destination under an IFR flight clearance sustains radio failure. Persons commenting on the rule believe that after climb to an MEA higher than the altitude that is assigned to the flight by ATC, the higher altitude must be maintained for the balance of the flight until reaching the fix from which the approach is to begin. The commentators stress the point that although climb instructions to achieve the appropriate altitude are spelled out in the rule, the rule is silent as to whether the pilot should descend to achieve or maintain an MEA or assigned altitude during the course of his flight when these levels become the appropriate altitude.

The intent of the rule is that the pilot who has experienced two-way radio failure should, during any segment of his route, fly at the appropriate altitude specified in the rule for that particular segment. The appropriate altitude is whichever of the following three is highest in each given phase of flight: (1) the altitude or flight level last assigned; (2) the MEA; or (3) the altitude or flight level the pilot has been advised to expect in a further clearance. The appropriate altitude for the route segment being flown is to be maintained regardless of whether the pilot finds it necessary to climb or descend to achieve that altitude. The rule does not contemplate that a pilot, once he has climbed to satisfy the rule for one segment of his route, may not descend so as to satisfy the rule in some later phase of his flight.

To illustrate the rule, if a pilot sustaining radio failure had an assigned altitude of 7,000 feet, and while enroute to his destination came to a route segment for which the MEA was 9,000 feet, he would climb to 9,000 feet at the time or place where it became necessary to comply with that MEA. If later, while he was proceeding to his destination, the MEA dropped from 9,000 feet to 5,000 feet, the pilot would descend to 7,000 feet (the last assigned altitude), because that altitude is higher than the MEA.

It is apparent that the portion of the rule delineating climb requirements has been the major source of confusion in the rule. The FAA has determined that this portion of the rule is not required for accomplishing observance of appropriate radio failure procedures, and may be rescinded in the interest of clarity in understanding the provisions of the basic rule.

Since this amendment is clarifying in nature, and imposes no burden on the public, notice and public procedure thereon are unnecessary and good cause exists for making this amendment effective on less than 30 days' notice.

In consideration of the foregoing, § 91.127 of the Federal Aviation Regulations is amended, effective February 5, 1971; paragraph (c)(2) is revised, paragraph (c)(3) is revoked, and the heading for paragraph (c)(5) is revised.

Sections 307(c) and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c) and 1354(a), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-87

Preflight Action

Adopted: January 29, 1971 **Effective: April 6, 1971**

(Published in 36 F.R. 2481, February 5, 1971)

The purpose of these amendments to Parts 91 and 135 of the Federal Aviation Regulations is to specifically require, as a part of the preflight action prescribed in § 91.5, that the pilot in command of an aircraft familiarize himself with all available information concerning the runway lengths at airports of intended use and takeoff and landing distance information appropriate to the aircraft. In addition, this amendment deletes § 135.113 which currently contains the substance of the change incorporated herein in § 91.5.

This amendment is based on a Notice of Proposed Rule Making, Notice 70-1, published in the Federal Register on January 10, 1970 (35 F.R. 386). Several comments were received in response to the Notice. Some comments stated that the current requirements of § 91.5, which are general in nature, are adequate and recognize the fact that preflight knowledge of runway distance information is a good operating practice that is covered by that section. Therefore, by expressly making this specific good operating practice mandatory, these commentators believe the FAA is unnecessarily subjecting pilots to possible violations of the regulations.

The FAA recognizes that good operating practice dictates that a pilot in command familiarize himself, prior to flight, with all available information concerning runway distance information. However, compliance with this good operating practice by all pilots, regardless of the type of operations conducted, can best be ensured by removing the current rule from Part 135 and making it a specific operating rule of Part 91 having general applicability.

In addition, objections were raised that there is not enough information available at many airports to enable pilots to comply with the requirements adopted herein, and that the regulation would require pilots to go to great length to find all informaion concerning runway distance information. In this regard, it should be pointed out that the proposal, and the rule adopted herein, applies only with respect to available information.

As adopted, the rule requires pilots in command of civil aircraft for which an approved airplane or rotorcraft flight manual is required, and which contains takeoff and landing distance information, to use that information in compliance with the requirements of § 91.5. Pilots in command of civil aircraft which have no approved airplane or rotorcraft flight manual, or which have manuals which do not provide takeoff and landing distance information, must use other reliable information, if it is available, relating to aircraft performance under expected values of airport elevation, wind and temperature.

Finally, § 135.113 is deleted inasmuch as the substance of that section has been incorporated in the amendment to § 91.5.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, and for the reasons stated in NPRM 70-1, Parts 91 and 135 of the Federal Aviation Regulations are amended, effective April 6, 1971.

These amendments are made under the authority of sections 313(a), 601, 602, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1422, and 1424), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-88

Category II Operations With Small Airplanes

Adopted: March 2, 1971 **Effective: May 9, 1971**

(Published in 36 F.R. 4591, March 10, 1971)

These amendments provide for the issuance by the Administrator of individual authorizations to permit a pilot to conduct Category II operations in small airplanes identified as Category A airplanes under § 97.3(b)(1), if passengers or property are not carried for compensation or hire.

These amendments are issued in response to a petition for rule making submitted by the Aircraft Owners and Pilots Association (AOPA), and serve as a disposition of that petition as well. The petition requests the adoption of rules amending current Category II requirements to allow Category II operations with small Category A airplanes with one pilot rather than two as currently required, without the required special equipment and maintenance, and also to allow Category II operations with small Category A aircraft on Category I ILS approaches to Category I runways.

In support of its petition, AOPA cites an extensive series of tests it conducted over a period of two and one-half years, during which time AOPA's pilot representative made more than 100 simulated approaches to a decision height of 100 feet in a small twin engine airplane. *In addition, five approaches (pursuant to a waiver from the weather minimums of* §§ 91.116 and 91.117) were made in conditions below Category I minimums.

As defined in Part 1 of the Federal Aviation Regulations, a Category II operation is a straight-in ILS approach to a runway of an airport under an ILS instrument approach procedure that includes lower than standard visibility minimums (down to 1,200 RVR from 2,400) and lower than standard decision heights (down to 100 feet from 200 feet). For the purpose of this amendment, standard minimums and operations are designated as Category I.

In order to gain additional information pertinent to the matter concerned herein, the FAA conducted a program of demonstrations in August, 1969, using both single and multiengine airplanes and using pilots of varying experience, including AOPA member pilots. These demonstrations tended to support AOPA's findings with respect to the use of slower, smaller, and more maneuverable airplanes in Category II operations. However, with regard to approaches under Category I systems, the demonstrations indicated that each airport must be individually evaluated in terms of ILS accuracy below current decision height minimums, and missed approach obstacle clearance surfaces at the lower decision heights.

Therefore, the FAA has determined that a general rule-making scheme as requested by AOPA is not appropriate at this time. However, the FAA does believe that the issuance of individual authorizations to permit Category II operations in small Category A aircraft is both consonant with safety and practicable. For several years the FAA, pursuant to authority currently contained in § 91.63, has issued waivers authorizing deviations in certain instances from the Category I requirements of §§ 91.116 and 91.117. Based upon the experience gained in this area, the FAA is confident that safety will not be impaired by adopting similar deviation authority in connection with certain Category II operations, inasmuch as Category II airports have more approach facilities and aids than Category I airports. Furthermore, this procedure will give the FAA an opportunity, under actual operating conditions, to compile and evaluate data for the purpose of determining the feasibility of adopting a general rule making approach as AOPA proposes. Therefore, the agency is amending Parts 61 and 91 to permit FAA personnel under the jurisdiction of the FAA regional offices to issue individual authorizations for Category II operations conducted in small airplanes identified as Category A aircraft in § 97.3(b)(1). However, the FAA does not believe that this authority should include the carriage of persons or property for compensation or hire and such a restriction is stated in the rules adopted herein.

Since these amendments delegate authority to issue individual authorizations and impose no additional burden upon any person, I find that public notice and procedure thereon are unnecessary.

In consideration of the foregoing, Parts 61 and 91 of the Federal Aviation Regulations are amended, effective May 9, 1971.

These amendments are proposed under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-89

Fastening of Safety Belts

Adopted: June 21, 1971 **Effective: August 30, 1971**

(Published in 36 F.R. 12511, July 1, 1971)

The purpose of these amendments to Parts 91, 121, and 127 of the Federal Aviation Regulations is to require that each occupant of an aircraft fasten his safety belt during the takeoff and landing of that aircraft, and to exempt airships from the requirement to have safety belts.

These amendments are based on two notices of proposed rule making: Notice 69-55, issued on December 18, 1969, and published in the Federal Register on January 8, 1970 (35 F.R. 324), and Notice 70-23, issued on June 24, 1970, and published in the Federal Register on June 30, 1970 (35 F.R. 10596).

Part 123 certificate holders (Air Travel Clubs) and Part 135 certificate holders (Air Taxi Operators) are subject to the requirements of this amendment, since § 123.27 requires compliance with § 121.311 and operations conducted under Part 135 with small aircraft are subject to the requirements of § 91.14 prescribed herein. However, operations conducted under Parts 121, 123, and 127 are expressly excluded from the seat and safety belt requirements of § 91.14, since those operations are subject to the requirements prescribed for them in Parts 121 and 127.

Many of the comments objecting to the proposed safety belt requirement erroneously supposed that the "separate use" provisions for Parts 121 and 127 operations applied to Part 91 operations. It is not intended that separate seats nor separate safety belts be required for operations conducted under Part 91. The amendment requires separate seats and safety belts only for those operations that must comply with either Part 121 or 127. Part 91 requires only that each person on board occupy a seat or berth with a safety belt properly secured about him.

Other comments stated that the proposed amendments are not justified, or are trivial, or are not enforceable. In spite of these objections, we believe adoption of the proposal will serve a useful purpose, and will contribute to safety in air commerce. The fact that each person on board an aircraft engaged in Part 91 operations must be notified to fasten his safety belt provides a level of safety not now provided. The wording of § 91.14 has been changed from the Notice to make it clear that it is the responsibility of the pilot in command to ensure that all persons on board the aircraft have been notified to fasten their safety belt. In the exercise of this responsibility, the pilot in command may assign to other crewmembers the function of notifying the passenger. This responsibility should rest with the pilot in command, since he is in the best position to know when the takeoff or landing is imminent.

Other comments objected to the requirement for seats and safety belts because it would conflict with the conventional practices of sports parachute jumpers. In recognition of the fact that jumpers usually sit on the floor of the aircraft where the seats have been removed, this amendment adds a provision which permits jumpers engaged in sports parachuting to use the floor of the aircraft as a seat. However, in the interest of safety, we consider it necessary that sports parachute jumpers use safety belts, particularly since it is not uncommon for the door of the aircraft to be removed during such activities.

Upon consideration of comments received, this amendment excludes airships from the safety belt requirement in § 91.33 and makes the requirement in § 91.14 for the use of safety belts applicable to all aircraft except airships, including experimental aircraft, gliders, and aircraft being operated under special flight authorizations.

Although several persons stated that weight rather than age should be used to determine who should be required to use safety belts, the weight criteria would be more difficult to implement; therefore, the age criteria is retained.

Comments received from Part 127 operators and the Aerospace Industries Association of America, Inc., have convinced us that scheduled air carriers using large helicopters should continue to be authorized to permit two children who have not reached their twelfth birthday to use one safety belt in a single seat if the strength requirements of the seat and the safety belt are not exceeded. Accordingly, the amendment retains this authority, with language to make the safety belt fastening requirement consistent with the provisions of other paragraphs in the amendment.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

In consideration of the foregoing, Parts 91, 121, and 127 of the Federal Aviation Regulations are amended, effective August 30, 1971.

These amendments are proposed under the authority of sections 313(a), 601, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1424), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-90

Anticollision Light Standards

Adopted: July 1, 1971 **Effective: August 11, 1971**

(Published in 36 F.R. 12970, July 10, 1971)

The purpose of these amendments is to (1) permit the use of either aviation red or aviation white anticollision light systems; (2) expand the chromaticity-coordinate range for aviation white; (3) increase the minimum effective intensities for anticollision lights installed on all aircraft to be type certificated after the effective date of these amendments; and (4) require that within one year after the effective date of these amendments all powered civil aircraft with standard airworthiness certificates have an approved anticollision light system for night flight.

These amendments are based on a notice of proposed rule making (Notice 70-21) published in the Federal Register on June 4, 1970 (35 F.R. 8665). Numerous comments were received in response to the Notice and except to the extent that a comment merely repeated issues which were discussed in detail and properly disposed of in the Notice, the FAA's disposition of those comments are set forth hereinafter.

Several comments objected to the requirement that all aircraft flying at night must be fitted with an approved anticollision light. One commentator pointed out that certain operators of small aircraft may fly for a few minutes after dark but only to reach a destination and that such operators should not be burdened with an expensive anticollision light requirement. Another commentator took a similar position with respect to aircraft that are operated at night only in local areas or only in an emergency. The FAA does not agree. With proper flight planning, flight after dark can usually be avoided without inconvenience. Moreover, any aircraft operating at night without an approved anticollision light constitutes a hazard regardless of whether it is being operated in a local area or in an emergency.

One commentator indicated that the FAA may have underestimated the problems associated with removal of the red filter on the anticollision light on existing aircraft. The commentator pointed out that it may be impossible to meet the current field-of-coverage requirements because of the need to mask the unfiltered light to eliminate back-scatter. While the FAA recognizes this problem, it should be noted that it was not proposed to require anyone to remove the red filters on existing aircraft. Moreover, if an operator elected to do so, he would not be required to meet the new intensity requirements. Furthermore, he could relocate the light to minimize the back-scatter problem.

There were numerous comments received in response to Notice 70-21 which recommended changes to the regulations in addition to those proposed in the Notice. In this connection, it was recommended that the current field-of-coverage requirements be extended; that the existing flash-frequency requirements be modernized; that exterior minimum intensity requirements be increased beyond the values proposed in the Notice; that a red anticollision light be required for nighttime use and a white anticollision light be required for daytime use; and that the operating rule in Part 91 also cover aircraft other than powered civil aircraft with standard airworthiness certificates. While some of these recommendations may have merit, they are beyond the scope of Notice 70-21. However, the FAA is now in the process of investigating and evaluating these recommendations to determine which merit further rule-making action.

One commentator suggested that final action on Notice 70-21 should be deferred until the current FAA/NASA research on aircraft exterior lighting is completed. The FAA does not agree. The changes to the anticollision light requirements proposed in Notice 70-21 are very limited in scope and they are not being dealt with directly in the referenced research. The additional rulemaking that may be generated by the FAA/NASA research would be concerned with the entire area of aircraft exterior lighting and no useful purpose would be served in further delaying the proposed changes.

Several commentators expressed the view that the display of white condenser-discharge anticollision lights significantly reduces the frequency of bird strikes in flight. One respondent submitted statistical data in support of its position and urged that the display of white condenser-discharge lights be made mandatory. The FAA does not agree with these comments. After a thorough review of the data presented, the FAA does not believe that a significant correlation between display of white condenser-discharge lights and frequency of bird strikes has been shown. However, the FAA is continuing its investigation in this area and if further studies reveal that a correlation does exist, it will be the subject of future rule-making action.

Various comments pointed out that while the Notice proposed to require an "approved" anticollision light system, it did not specify the standards for such approval. This appears to be a problem only with respect to anticollision light systems that would have to be installed on aircraft type certificated under airworthiness standards which did not incorporate anticollision light standards. For large aircraft and for certain small aircraft, the operation rules have long required anticollision lights and the airworthiness regulations have long contained standards for such lights. Thus, lights meeting the applicable airworthiness standards are approved lights. In addition, numerous airplanes have, in the past, had anticollision light systems installed voluntarily. All of these systems were approved by the FAA and they continue to be approved. The question as to the identification of approved anticollision light systems arises with respect to the installation of anticollision lights required by this amendment to be installed on aircraft which were certificated under airworthiness standards that did not contain standards for anticollision lights. The FAA is aware that in most instances, the modifications to the older aircraft that would be necessary in order for the anticollision lights to meet the higher intensities proposed in Notice 70-21 would be extensive and may, in certain instances, be prohibitive. This was recognized in the Notice and it was not intended that the older aircraft should be required to meet the higher intensities set forth in this amendment. Therefore, the proposal has been revised to make it clear that for the initial installation of anticollision lights on the older aircraft (those for which type certificates were applied for or issued prior to the effective date of this amendment), the anticollision lights would only need to meet the anticollision light standards in Parts 23, 25, 27, or 29, as applicable, effective immediately prior to the effective date of the amendments contained herein.

Another comment expressed an objection to the proposed increase in the intensity level of anticollision light systems for future aircraft on the grounds that for small aircraft using red anticollision lights, power requirements would be unreasonable, service life short and reliability low, and that for small aircraft using the white anticollision lights, it would not be possible to shield them for purposes of back-scatter without a reduction in the required field-of-coverage. The FAA is aware that for red anticollision lights more electrical power would be needed to meet the new requirements than has been provided in the past. However, the FAA believes that this additional power capacity can be provided on future aircraft at reasonable cost, without incurring a low-service-life or low-reliability penalty. Moreover, a manufacturer would now have the option of installing a white anticollision light, thereby eliminating the power problem. The back-scatter problems referred to by the commentator can be solved without diminishing the field-of-coverage by installing a system consisting of three lights, one at each wing-tip and one on the tail.

Finally, one commentator urged the FAA to specify, as part of the revision to the intensity standards for anticollision lights, a minimum infra-red signal content for use with PWI systems now under development. This matter was discussed in some detail in Notice 70-21 and the FAA maintains its view that it would be premature to require a minimum infra-red signal content until current evaluations by the FAA of the PWI system concept on civil aircraft have been completed. This does not, however, prohibit the incorporation of infra-red signal content in any anticollision light system.

In consideration of the foregoing, Parts 23, 25, 27, 29, and 91 of the Federal Aviation Regulations are amended, effective August 11, 1971.

These amendments are issued under the authority of sections 313(a), 601, 603, and 604 (49 U.S.C. 1354, 1421, 1423, and 1424), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-91

Flights Within the Terminal Control Area

Adopted: July 16, 1971 **Effective: July 23, 1971**

(Published in 36 F.R. 13684, July 23, 1971)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to more clearly delineate the extent of permissible flight within a terminal control area by nontransponder equipped aircraft. This amendment was proposed in Notice 71-4 published in the Federal Register on February 18, 1971 (36 F.R. 3129).

Only ten comments were received in response to Notice 71-4 and of those ten only three comments were critical of the proposal. In one case the commentator objected to the floor levels within the terminal control area itself, and the fact that the very existence of those floors blocked low altitude airspace unnecessarily. A second commentator in making the same objection noted that requiring light transponder equipped aircraft to fly over or around a terminal control area was in itself unsafe because it forced a choice between an altitude of decreasing performance or a route that unnecessarily reduced the available fuel margin. The third objection was to the effect that if it was not unsafe to permit a nontransponder equipped aircraft to penetrate a terminal control area on its way to a satellite airport, then it should not be unsafe to permit any IFR enroute operation to traverse a terminal control area regardless of its destination.

The FAA does not believe that the first two objections were germane to the proposal contained within Notice 71-4 as both opposed the terminal control area concept rather than the specific proposal itself. Comments of like import were addressed to the notice which proposed the terminal control area concept and were dealt with at that time.

As for the third objection, the FAA cannot agree with that assertion for a number of reasons. In the first place, to provide a narrow exception to a given rule is a far different thing than destroying the objective of the rule by making the proposed exception too broad. Also, while safety requires the use of transponders in TCA's, the FAA's duty to provide for the efficient utilization of the airspace must also be respected where to do so is not in derogation of the safety considerations that gave rise to the rule itself. In short, while the FAA believes that it would have been unreasonable to completely ban nontransponder equipped aircraft from a TCA, it would be equally unreasonable and unsafe to destroy the entire TCA concept by permitting unrestricted IFR enroute operations.

Interested persons have been afforded an opportunity to participate in the making of this amendment. In other respects, for the reasons stated in the preamble to the Notice, this rule is adopted as prescribed herein.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective July 23, 1971.

This amendment is issued under the authority of sections 307(c) and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c) and 1354(a)), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-92

Transponder Failure

Adopted: July 16, 1971 **Effective: July 23, 1971**

(Published in 36 F.R. 13684, July 23, 1971)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to alter the transponder requirements applicable in terminal control areas so as to permit an aircraft to proceed to its final destination, or to an airport with suitable repair facilities, even though the aircraft transponder has become inoperable.

This amendment was proposed in Notice 71-5 and published in the Federal Register on February 18, 1971 (36 F.R. 3129).

All comments received in response to the Notice were favorable.

Interested persons have been afforded an opportunity to participate in the making of this amendment. In other respects, for the reasons stated in the preamble to the Notice, this rule is adopted as prescribed herein.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective July 23, 1971.

This amendment is issued under the authority of sections 307(a) and (c) and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348(a) and (c) and 1354(a) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-93

Carriage of Narcotic Drugs, Marihuana, and Depressant and Stimulant Drugs or Substances by Aircraft

Adopted: August 25, 1971 **Effective: August 31, 1971**

(Published in 36 F.R. 17495, September 1, 1971)

The purpose of these amendments to the Federal Aviation Regulations is to identify substantively the violations of Federal narcotics laws now listed in the pertinent regulations by U.S. Code citations, and to make other editorial changes brought about as a result of the new Comprehensive Drug Abuse Prevention and Control Act of 1970 (P.L. 91-513).

Since these amendments are editorial in nature, and no substantive change in the regulations is effected, I find that notice and public procedure thereon are unnecessary and that they may become effective in less than 30 days.

In consideration of the foregoing Parts 61, 63, 91, 121, 123, 127, and 135 of the Federal Aviation Regulations are amended as follows effective August 31, 1971.

Sections 307(c), 313(a), 601, 602, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c), 1354(a), 1421, 1422, and 1424) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-94

Extension of Compliance Date for Installation of Altitude Alerting Systems

Adopted: September 3, 1971 **Effective: August 31, 1971**

(Published in 36 F.R. 18304, September 11, 1971)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to extend the compliance date for installation of the altitude alerting system or device required by § 91.51.

Section 91.51 was adopted by Amendment 91-57 (effective September 28, 1968, 33 F.R. 12180). As adopted, § 91.51 required that after February 28, 1971, no person may operate a turbojet powered U.S. registered civil airplane unless that airplane is equipped with an approved altitude alerting system or device which is in an operable condition and meets certain specified requirements.

As a result of unforeseen problems in the manufacture and distribution of the altitude alerting equipment, causing a delay in timely installation, many affected operators petitioned for rule making to extend the February 28, 1971, compliance date. Accordingly, the FAA adopted Amendment 91-81 (35 F.R. 16793) to extend the compliance date of the section for six months to August 31, 1971.

The FAA has recently received numerous petitions for exemptions from air carriers and other interested persons requesting that the August 31, 1971, compliance date be extended. Based on the information contained in these petitions and further FAA study, it appears that substantial procurement, delivery, installation, and reliability problems have arisen with regard to altitude alerting systems or devices. Therefore, we believe that an extension of the compliance date of § 91.51 is in the public interest. Accordingly, § 91.51 has been amended to extend the compliance date thereof to February 29, 1972.

Since this amendment does not change the existing rule, but merely extends the time for compliance, I find that public notice and procedure thereon are not necessary, and that the amendment may become effective in less than 30 days.

In consideration of the foregoing, § 91.51(a) of the Federal Aviation Regulations is amended, effective August 31, 1971, by striking out "August 31, 1971," and inserting "February 29, 1972," in place thereof.

This amendment is issued under the authority of sections 313(a) and 601(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421(a)), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–95

Emergency Locator Transmitters

Adopted: September 14, 1971 **Effective: October 21, 1971**

(Published in 36 F.R. 18716, September 21, 1971)

These amendments to Parts 25, 29, 37, 91, 121, and 135 of the Federal Aviation Regulations implement Section 31 of Public Law 91–596, achieve uniformity in the terminology used therein, and update requirements and standards for the manufacture, installation, airworthiness, and operation of emergency locator transmitters required on airplanes operated in air commerce. In addition, the current requirements of Part 121 (also applicable to air travel club operations conducted under Part 123) concerning emergency signaling devices required for extended over-water operations and operations over uninhabited terrain, are updated. Finally, a requirement for an emergency locator transmitter for extended over-water operations has been added to Part 135.

These amendments are based on a Notice of Proposed Rule Making, Notice 71–7, published in the Federal Register on March 13, 1971 (36 F.R. 4878). Nearly 200 commentators responded to the Notice, and based on the views they expressed and further examination by the FAA, several changes have been made to the Notice. The analysis of the comments has been broken down into three broad categories: those comments which are general in nature or which speak to the general objective of the Notice; those comments submitted in direct response to the FAA request for comments addressed to the 75 milliwatt power standard; and those comments making specific recommendations or stating specific objections. The changes made by the FAA independent of any public comment will be discussed within this framework.

General Comments. Approximately 50 commentators objected to any requirement for emergency locator transmitters for the following reasons: past experience with such locator devices indicates that they seldom prove helpful in locating a lost airplane and thus their benefit does not justify their cost and weight; installation and use of an emergency locator transmitter should be optional with the operator—those who are willing to take the risk of operating without a transmitter should be allowed to do so; required use of the transmitter would generate a tremendous search and rescue workload, which combined with false alarms, would cause air rescue personnel to lose their effectiveness and enthusiasm; emergency locator transmitters are not reliable; and finally, there is no need for an emergency locator transmitter if the pilot files a flight plan and follows it, because when an emergency occurs, he has ample time to notify the nearest FAA facility and report his position.

As pointed out in the Notice, this regulatory action has been taken in response to a mandate from Congress (Public Law 91–596, amending section 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1301 et. seq.)), and as such, the FAA has no authority to grant exemptions from that section. With regard to the matter of reliability, the FAA has no reason to believe that emergency locator transmitters designed to meet the standards adopted herein would not be adequately reliable. With regard to flight plans, the FAA believes that rather than being a substitute for an emergency locator transmitter, the flight plan can be effective adjunct to such equipment. To this end the agency is considering rule-making action to require the use of flight plans for all operations with large U.S. registered civil airplanes and all turbine powered multiengine U.S. registered civil airplanes when operated in the United States, and which are not subject to Parts 121, 135, or 137.

Numerous comments were received recommending that the FAA exempt certain classes of airplanes, which were not exempted by Public Law 91–596 nor the proposals in Notice 71–7, from the emergency locator transmitter requirements. Specifically, it was recommended that the following be exempted: private airplanes; air taxi airplanes; amateur-built airplanes; antique airplanes; turboprop and multi-reciprocating-engine airplanes operated by a two-man crew; airplanes undergoing "export ferry"; airplanes that carry ATC transponders; and airplanes that do not operate over mountainous areas, sparsely populated areas, nor wide expanses of water.

As previously mentioned, the FAA does not have the power to expand the class of airplanes exempted by Public Law 91–596 from compliance with the emergency locator requirements of that law. This also applies to the comment of the ATA which contends that it was the intent of the statute to exempt all operations conducted by air carriers, not just operations conducted under Part 121, and thus recommends that charter operations, training flights, and ferry flights, when those operations are conducted in propeller-type airplanes, be exempt as well.

Several comments were received recommending that the FAA adopt a rule requiring that flight crewmembers of air carrier and military aircraft monitor the emergency frequencies during flight time, and that each emergency signal received be reported to the nearest FAA facility. Without such a requirement, these commentators contend, a requirement for an emergency locator transmitter is unjustified.

Although the air carriers have indicated a willingness to monitor emergency frequencies, and most military aircraft are equipped for this purpose, the FAA does not believe that requirements in this regard are necessary. Aircraft routinely used for search and rescue are equipped for homing in on emergency locator transmitter signals. In addition, emergency frequencies will be monitored in all FAA flight inspection aircraft and appropriate monitoring capability is planned for future installation in certain strategic Forest Service watchtowers. The FAA considers this monitoring capability to be adequate for the present. Additional rule making may be undertaken, however, if experience in service indicates the need for supplementary monitoring.

The proposal to bring the emergency locator transmitter under the Technical Standard Order (TSO) procedures of Part 37 was objected to by several commentators. These commentators recommended that emergency locator transmitters should be tested by independent test laboratories, the National Bureau of Standards, or the FAA, rather than permit the manufacturer to, in effect, certify his own product. It was contended that under the TSO system, manufacturers will use incorrect measuring techniques and tamper with test results.

The FAA does not agree with this comment. The TSO system has been applied successfully in the past to hundreds of manufacturers of such airborne electronic equipment as radio navigation equipment, ATC transponders, radar altimeters, and various flight instruments. There is no reason to believe that it cannot be applied equally as well in this case. Although the FAA, under the TSO system, does not require testing by an independent laboratory, it does review the technical data submitted by the applicant (manufacturer), and also monitors quality control to ensure compliance with the standard.

Two commentators requested that the proposed emergency locator standards be revised, or replaced, in order to accommodate their own emergency signaling concepts. On the basis of the information submitted by these commentators, the FAA does not believe that there is sufficient justification to change the standards applicable to emergency locator transmitters, which were developed after exhaustive discussions among industry and government organizations.

Several commentators pointed out that FCC rules require that each airplane fitted with an emergency locator transmitter must also be equipped with a radio transmitter and receiver that operate on at least one other frequency. In addition, the airplane must have an FCC Station license and the operator must have an FCC operator's license. Consequently, these commentators contend, they will have to install, in addition to the emergency locator transmitter, expensive radio equipment that FAA does not require and that they do not need. Further, they would have to acquire both a station and an operator's license and pay the associated fees.

The FAA has been informed by the FCC that it plans to issue an amendment to its regulations, before the earliest effective date of Public Law 91-596 (December 30, 1971), that would permit the installation of an emergency locator transmitter in an airplane, without requiring the operator to obtain an FCC Station license or to acquire additional radio equipment, if the transmitter does not have voice transmission capability. This FCC rule making should solve most of the problems posed by these commentators. An operator's license would still be required, however.

Several commentators pointed out that the Notice made no mention of a voice communication capability in the emergency locator transmitter, and contended that such capability should be made mandatory, or at least permitted. These commentators believe that this is a vital consideration, for it would enable a downed pilot to direct search and rescue aircraft to the scene and communicate his needs to them. The FAA does not agree that a voice communication capability is an essential feature which warrants rule-making action. However, the FAA has no objection to an optional feature such as the voice capability, provided all required standards adopted herein are met. Prospective users of emergency locator transmitters having this capability should consult FCC regulations concerning voice-modulated transmitters.

Several commentators expressed concern that emergency locator transmitters might be activated inadvertantly and suggested various ways of preventing such inadvertant activation, or of detecting it quickly after it occurs. The FAA is reviewing these suggestions to determine whether further rule making should be undertaken.

There were numerous other comments of a general nature received which were outside the scope of the Notice and thus are not discussed herein. However, it should be pointed out that as the state-of-the-art develops with regard to emergency locator transmitters, the FAA will undertake additional rule-making actions to implement necessary changes in technology and practice.

The 75 Milliwatt Power Standard. Notice 71–7 requested comments addressed specifically to the 75 milliwatt peak effective radiated power standard developed by the Radio Technical Commission for Aeronautics (RTCA) for emergency locator transmitters. As stated in the Notice, the 75 milliwatt standard was proposed because it would provide a transmission range of 50 nautical miles even where conditions at the site were unfavorable. Twenty comments were received in response to this point, and 14 recommended adoption of the standard, two recommended an increase in power, and four recommended a decrease. These comments are discussed below.

Those commentators recommending an increase in power contended that lost airplanes are often far off course thus necessitating a signal strong enough to be received by ground stations (to this point, one commentator recommended a power standard of 300 milliwatts, the other a power standard of 500 milliwatts). It was stated that an increase to 500 milliwatts, combined with a 1:3 on-off duty ratio for the transmitter would provide maximum range per unit battery weight.

Those commentators recommending a decrease in power contended, generally speaking, that a lower value for peak effective radiated power would reduce the cost and size of the transmitter. Thus, one commentator stated that reduction in power to 7.5 milliwatts would result in a ten-fold increase in transmission duration for a given battery weight or, alternatively, in a ten-fold reduction in battery weight for a given duration of transmission. Such a transmitter would provide a 16-mile transmission range which would be adequate for the purpose. For similar reasons, other commentators recommended a reduction to 25 milliwatts, or adoption of the lower radiated power level currently specified by Canadian regulations.

The FAA has carefully reviewed all comments submitted in regard to this matter, as well as FAA findings, and has concluded that the 75 milliwatt power standard represents a reasonable compromise and is realistic with regard to effectiveness, cost, and weight.

Comments of Specific Recommendation. Numerous specific recommendations and objections were made in response to Notice 71–7, and those within the scope of the Notice are discussed below in the order the proposals on which they are based appeared in the Notice, and, where possible, in connection with specific section numbers.

Section 25.1415(d) and 29.1415(d). Three commentators recommended that more than one survival type emergency locator transmitter be required on aircraft certificated for ditching. One recommended that two transmitters be carried since ICAO Annex 6 requires two. Another recommended that there be one for each life raft because seldom are all life rafts deployed after a ditching. Based on the service record to date, the FAA does not believe that it is necessary to require that more than one life raft be equipped with a survival type emergency locator transmitter.

Section 37.200(b)(1). Several commentators noted that the proposed standard for personnel type emergency locator transmitters (DO–145) permits the use of self-contained antennas that must be manually deployed. The point was made that should the occupants be incapacitated, or merely forget to deploy the antenna, a sharp reduction in the strength of the signal would result. Moreover, this kind of personnel emergency locator transmitter, in its normal stowed position, is screened by the aircraft's skin such that its signal strength is further reduced, and the antenna radiation pattern is distorted. To remedy these situations, it was recommended that these transmitters meet the radiated power output, and omnidirectional radiation pattern requirements of DO-145, as mounted in the airplane. Another recommendation suggested the FAA prohibit the use of antennas that must be deployed.

Self-contained antennas that must be manually deployed have been an accepted feature of hand-held communication receivers and transmitters for many years. The FAA believes that only a small percentage of pilots would be unable, or forget, to deploy the antenna after a crash landing. However, even in that case, tests have indicated that emergency locator transmitters located inside the airplane, with antennas either not deployed or only partially deployed, are still capable of a measure of useful performance. Furthermore, portable emergency locator transmitters with protruding fixed antennas may be a hazard to persons in the crash situation.

Section 37.200—Paragraph 2.2.1 of DO-145, 146, and 147. It was recommended that the frequency requirements be revised to permit operation on either 121.5 or 243.0 MHz, because many emergency locator transmitters currently in service operate on only one of these frequencies, and this is sufficient. The FAA believes that transmission on both frequencies is essential to successful operation of the emergency locator system, which is dependent upon full utilization of available civil and military monitoring capability.

Section 37.200—Paragraph 2.2.2 of DO-145, 146, and 147. With regard to the type of signal modulation required, it was recommended that an upward sweep be permitted as well as the proposed downward sweep because the latter is more costly and because both are readily identifiable and in fact, sound alike.

The proposal for a downward sweep tone was based upon an FAA determination that such a tone would provide a unique, recognizable, attention-getting signal that could be distinguished from background noise. We believe that to permit an upward sweep as well would only serve to lessen these advantages. The FAA is not persuaded that an upward sweep would cost less, nor that it sounds the same as a downward sweep.

Section 37.200—Paragraph 2.2.3 of DO-145, 146, and 147. It was recommended that the minimum modulation duty cycle be reduced from 33 percent to 10 percent, the commentator contending that the higher standard serves no useful purpose, but merely increases cost; whereas the lower standard would not adversely affect the performance of the transmitter. Another commentator suggested that an average modulation duty cycle be prescribed with a standard between 25 percent and 75 percent without specifying an instantaneous modulation duty cycle; or, alternatively, an average modulation duty cycle between 33 percent and 67 percent with an instantaneous modulation duty cycle between 10 percent and 90 percent. It was contended that such standards would result in an increase in power of weak signals, and an increase in the effectiveness of search operations because it would be apparent when the signal strength is increased or decreased.

The proposed modulation duty cycle was developed by the RTCA and the FAA as a practical compromise among several possibilities, such as those mentioned by the commentators. From the information submitted by these commentators, the FAA is not persuaded that any of the standards suggested by them would provide any significant improvement.

Section 37.200—Paragraph 2.2.4 of DO-145, 146, and 147. Several commentators contended that cost could be reduced and battery life increased if the transmitter duty cycle requirement were revised to permit interruption of the carrier. One commentator suggested a transmitter duty cycle of between 100 percent and 33 percent, with an "off" period not to exceed 0.75 seconds. Another suggested that the "on" period be not less than two complete audio sweeps, and that the "off" period not exceed two seconds, or two times the "on" period, whichever is less. This commentator contended that this type of interrupted transmission has been proven to be more effective than the conventional swept-tone signal and that the FAA has recognized this in TSO-C61a.

This standard was selected from several alternatives by the RTCA, with FAA participation. It was found that these "interrupted-carrier" transmissions lower the reliability of the emergency locator transmitter and complicate the task of the search receiver, thereby reducing the effectiveness of the transmitter. On the basis of the information submitted, the FAA is not persuaded that other transmitter duty cycles would improve transmitter performance.

Section 37.200—Paragraph 3.1 of DO-145. One commentator recommended that the low operating temperature be reduced from 0° C. to −20° C. since personnel type emergency locator transmitters are to be attached to the airplane (proposed § 91.52(b)(2)) as is the case with automatic-type transmitters which are required to meet the −20° C. standard.

The FAA agrees that personnel type emergency locator transmitters may be required to operate at temperatures below that prescribed in DO-145. Accident records indicate that a significant number of accidents have occurred in ambient temperatures between 0° C. and −20° C. To assure effective performance in foreseeable conditions, the "Low Operating Temperature" requirement has been changed to −20° C., and a concomitant change to the low temperature required for the temperature variation test, as prescribed in DO-145, from −20° C. to −40° C. has been made.

Section 37.200—Paragraph 3.1 of DO-145, 146, and 147. Another recommendation concerning temperature standards suggested that the maximum high operating temperature specified in this paragraph be increased from +55° C. to +71° C., because, it was contended, solar heating can raise the temperature 35° C. above the ambient. The FAA considers the +55° C. figure to be realistic and reasonable based on the probability of exposure to high temperature in service.

Section 37.200—Paragraph 3.4(a) of DO-145, 146, and 147. One commentator recommended that the FAA replace the proposed maximum g. level with the military standard, Curve IIIA of Mil-E-5400, Fig. 2, because the proposed maximum g. level was unnecessarily high, and because the military standard is adequate in military airplanes, which have vibration stresses significantly higher than civil airplanes.

The proposed maximum g. values were developed to ensure reliable operation after prolonged exposure to severe vibration and shock environments. The FAA has no reason to believe that the vibration environment in civil aircraft is necessarily less severe than that in military aircraft, thereby justifying a lesser standard. The FAA's views in this regard apply to other comments discussing the g. standard for other types of transmitters.

Section 37.200—Paragraph 1.9(a) of DO-147. It was recommended that the prohibition against sharp edges or projections on automatic-fixed type emergency locator transmitters be deleted because such transmitters must be installed in the tail section of the airplane where it is not accessible to the cockpit. Regardless of the location where the emergency locator transmitter is attached, the FAA believes that a prohibition against sharp edges and projections is necessary for all transmitters. Although fixed and deployable automatic type transmitters must be attached as far aft as practicable, there is no assurance that they would not be located where they could injure occupants or damage inflatable survival equipment.

Section 37.200—Paragraph 3.5 of DO-147. One commentator recommended that the temperature range specified in this paragraph be changed from a range of −40° C. to +55° C. to a range of −20° C. to +55° C. to make it consistent with paragraph 3.1 which prescribes this latter range as the operating temperature range for the subject transmitters. The FAA does not agree with this comment, because the test requirements of paragraph 3.1 are different than those of paragraph 3.5 with a corresponding difference in temperature requirements.

Section 37.200—Appendix A, Part II, Section T-2, Step 5a of DO-145, 146, and 147. A commentator recommended that the transmitter peak effective radiated power test prescribed in this step be revised to permit the use of a quarter-wave-length element surrounded by three quarter-wave-length radials spaced 120° around its base. It was contended that this arrangement would match the 50-ohm output impedance of most signal generators, whereas the arrangement prescribed in Step 5a would have a mismatching impedance of 25-30 ohms.

The FAA sees no compelling reason to adjust its test procedure to facilitate an impedance match with signal generators. Any mismatch that exists must be accounted for under the referenced provision in DO-145, 146, and 147.

Section 37.200(c)(1). Several commentators recommended that the additional performance standards for automatic activation prescribed in this proposal be deleted entirely. A discussion of the various reasons for this position, and the corresponding FAA response follows. Those comments already discussed which are applicable to this proposal are not dealt with further.

It was contended that the automatic activation feature on most existing emergency locator transmitters is either too "tender" or too "stiff". In the case of the former, false alarms result; in the case of the latter, the transmitter may not be activated in a crash.

In addition, experience in Alaska, it is argued, has shown that g.-switches are activated by moderately hard landings, with the resulting operation of the transmitter going unnoticed by the pilot, thus running down the battery and rendering the transmitter useless.

The proposed automatic activation standard was developed after a thorough examination of past service experience with devices of this kind. The FAA believes that emergency locator transmitters designed to that standard will not be activated during a hard landing, nor will they fail to activate during a crash landing. However, to help prevent inadvertant or accidental activation, a requirement for a switch guard has been added in new subparagraphs (c) (4) and (c)(5). The guard is required for all personnel, automatic portable and survival type emergency locator transmitters, which use a manual activation switch. In addition, the guard is required for all automatic deployable type emergency locator transmitters using a remote activation switch.

Canadian aviation authorities have recommended that the emergency locator transmitter not be turned on for 24 hours after a crash because it would take that long before it could be determined that an airplane was lost or where it might be. The FAA does not agree. In many areas, the emergency signal could be detected by aircraft flying normal routes and a search could be initiated. A 24-hour delay in some cases could prove fatal.

Some commentators contended that an automatic portable emergency locator transmitter, as described in DO-147, could adequately perform the functions of an automatically activated personnel type emergency locator transmitter, and thus there is no need for the latter. In this regard, it should be noted that the standards, as proposed in Notice 71-7, for automatic portable type emergency locator transmitters are, in several respects, more severe than those proposed for the personnel type. The FAA sees no justification for applying these higher standards to all users, as suggested.

In addition to those comments which recommended that the standards of § 37.200 (c)(1) be deleted entirely, several comments on specified proposals in § 37.200(c)(1) were received. A discussion of them follows.

Several commentators pointed out the typographical error in subparagraph (c)(1)(i) prescribing a force of 5.0±2.0 g. The correct force standard should read $5.0\,^{+2}_{-0}$g., and this is adopted herein. The FAA has found, after considerable experience with crash-activated devices, that an inertia limit below 5g. leads to "nuisance tripping" during hard landings or when the taxiway is rough.

Two commentators recommended that the time duration standard of 11 milliseconds prescribed in subparagraph (c)(1)(i) be changed to $11\,^{+5}_{-0}$ milliseconds to provide a practical manufacturing tolerance. The FAA agrees with this comment, and accordingly subparagraphs (c)(1)(i) and (iii) have been changed to prescribe an $11\,^{+5}_{-0}$ millisecond standard. In addition, it has been necessary to make a similar change, by way of exception in § 37.200(b)(2)-(4), to the standard as prescribed in DO-145, 146, and 147.

Several commentators recommended that a "g.-versus-time" curve, with a defined minimum g. value be established in place of the limits proposed in § 37.200(c)(1)(i), contending that impact switch characteristics necessitate a greater number of force/time points for design. It was argued that this type of standard would define the desired severity of crash irrespective of airplane structure, location of the emergency locator transmitter, or kind of crash.

The "g.-versus-time" alternative was considered by the FAA, but we concluded it would be too restrictive and unnecessary to provide a minimum level of safety. The g. value proposed by these commentators could lend to "nuisance tripping."

Another commentator recommended that § 37.200(c)(1) be revised to permit use of "deformation sensors", installed in the nose, wing, or other vulnerable part of the airplane. Such sensors, it was contended, have been used successfully in many military applications. The FAA agrees with this comment, pointing out that the note following paragraph 2.3.1 of DO-147 permits this alternative means of activation. Accordingly, the substance of that note has been added to § 37.200(c)(1).

Another alternative for activation, based on the combined use of a ram-air switch and an impact switch, was recommended. Under this arrangement, the emergency locator transmitter would transmit only when the impact switch is activated following flight of the aircraft, thus reducing, the commentator contended, the possibility of inadvertant activation. The FAA considers this approach unnecessarily complex. Moreover, it appears that it could prevent needed activation of the transmitter in some circumstances.

Section 37.200(c)(2). Numerous comments were addressed to the proposal requiring a manually activated test circuit, and the majority of them recommended deletion of this requirement. The points raised in these comments and the information submitted with them indicate that due to unnecessarily complex design and functional problems, and questionable benefits to the user, this requirement is not practical at this time. Accordingly, proposed § 37.200(c)(2) has been deleted.

Section 37.200(c)(3). Several commentators, largely manufacturers of emergency locator transmitters, responded to the marking proposals of this subparagraph, and the majority of them recommended they be deleted. Generally speaking, the bases for this position were the problems involved with obtaining battery manufacturer cooperation, and the fact that the required dates may mislead the user because they may not be a true indicator of available battery power. Upon examination of the points raised by these commentators, the FAA agrees that a requirement for the marking of date of manufacture is of questionable value, and believes further that the marking requirements of §37.200(f)(1) (battery replacement date) and § 91.52(d) are adequate to ensure operable power sources. Accordingly, the first sentence of § 37.200(c)(3), as proposed, has been deleted.

Several commentators addressed recommendations to the proposed requirements of § 37.200(c)(3) regarding battery electrical connections, contending that there is no reason why spring contacts (prohibited in the Notice), if properly designed for this application, could not be used. Furthermore, it was stated that special connection requirements serve only to increase battery cost and thereby make it more difficult to keep spares available.

The FAA is persuaded that battery connections which rely on spring force alone are not necessarily subject to failure. Accordingly, the last sentence of §37.200(c)(3), as proposed, has been deleted.

Section 37.200(d). One commentator recommended that this paragraph recognize other environmental testing techniques which meet or exceed the standards prescribed in DO-147 and referenced in this section. In this regard, it should be noted that § 37.9 permits a manufacturer to deviate, upon application and approval, from any performance standard prescribed by a TSO. Therefore, it is unnecessary to incorporate this commentator's recommendation in paragraph (d).

Section 37.200(f)(1). Several commentators recommended that the marking requirements proposed in this subparagraph be deleted, and the operator of the airplane merely be required to post battery replacement schedules in the airplane logbook. It was contended that some emergency locator transmitters are externally mounted thus resulting in exposure to the elements causing markings to fade. In addition, these commentators stated that because many transmitters are mounted internally in inaccessible places, checking would be difficult, and the tendency of many operators would be to neglect the battery replacement requirement.

The FAA anticipates no difficulty with this requirement. Most emergency locator transmitters will be internally mounted and visible. In the case of externally mounted transmitters, markings can be designed to remain legible even when exposed to the weather. Those transmitters that are not visible will be examined during normal airplane maintenance.

Two commentators recommended that nickel-cadmium rechargeable batteries and water-activated batteries be excepted from the requirements of subparagraph (f)(1) because, with regard to the former, they have an indefinite shelf life, and with regard to the latter, their condition is not time-related.

The FAA agrees that water-activated batteries have, for all practical purposes, an unlimited shelf life. Furthermore, it appears that this requirement should be qualified to take into account rechargeable batteries. Accordingly, § 37.200(f)(1) has been revised to except emergency locator transmitters with water-activated batteries from the battery-replacement-date marking requirement. In addition, § 37.200(f)(1) now permits those emergency locator transmitters using rechargeable batteries to be marked with a "recharging" date rather than a "replacement" date. This revision has necessitated a change in proposed § 37.200(g)(2), which will be discussed in connection with that section.

Section 37.200(f)(2). One commentator recommended that this subparagraph be revised to indicate that it does not apply to components that are mechanically connected to the main emergency locator transmitter unit, because, the commentator contended, there is no reason to identify such components. The FAA does not agree. The language used in this subparagraph regarding the marking of separate components has been used in several TSO standards without difficulty, and the agency considers it adequate for the purpose of requiring manufacturers to permanently set forth certain basic information

Section 37.200(g)(2). With regard to the battery useful life requirement of this subparagraph, one commentator recommended that the useful life be established by the battery manufacturer rather than the transmitter manufacturer, for the reason that the former is best qualified to provide data on the useful life of his product.

Section 37.200 is addressed to emergency locator transmitter manufacturers, and not to battery manufacturers and the FAA does not consider it practicable to divide TSO authorization between the two. Finally, the transmitter manufacturer can be expected to be adequately familiar with the useful life of the battery he is using.

As mentioned previously, it has been necessary to make certain minor revisions to accommodate rechargeable batteries. Accordingly, this proposed subparagraph has been revised to recognize rechargeable batteries by basing their useful life on the life of the charge.

Section 37.200(g)(5). One commentator contended that the language of this requirement concerning data relating to actual equipment performance could be interpreted to require testing to destruction, particularly with respect to shock, vibration, and high temperature. The FAA agrees that testing to destruction should not be required solely to obtain data for the equipment data sheet. Accordingly, proposed §37.200(g)(5) has been revised to require data sheets specifying the equipment's typical actual performance. The intent of this provision, as well as § 37.200(h) which refers to it, is to require that the equipment data sheet contain actual performance data for equipment of that type, not for each individual unit. As such, the manufacturer is permitted to determine what the performance characteristics are for his particular type of equipment, without being required to test each unit, or to test them to destruction.

Section 37.200(h). One commentator recommended that the provision requiring the transmitter manufacturer to furnish a copy of the installation instructions, and of the data sheet, with each unit be revised to except transmitters furnished in bulk to aircraft manufacturers or aircraft fleet operators. It was argued that this requirement is appropriate only for transmitters that are sold individually.

The FAA disagrees. If bulk transmitter deliveries were excepted from this requirement there would be no assurance that the ultimate user would get a copy of the data sheet required in § 37.200(g)(5). The bulk purchaser could resell the transmitter in small lots or individually.

Section 91.52(a). One commentator recommended that the requirement for an emergency locator transmitter be extended to the more than 4,000 rotorcraft now in service. This comment is beyond the scope of Notice 71-7; however, it should be noted that the FAA is currently examining this area to determine if further rule making is warranted.

With regard to the compliance date requirements of subparagraph (a)(2), two commentators stated that the three-year time table prescribed in Public Law 91-596 should be applied to operations conducted under Part 135, rather than the one year proposed in the Notice. It was contended that this time was necessary in order to adequately provide for the design of transmitter installations, particularly the antenna installation.

The FAA agrees that the effective date should be the same for all operations covered by § 91.52(a)(2), and that provision has been revised accordingly.

Section 91.52(b). Several commentators recommended that the words "a personnel type or" be deleted from subparagraph (b)(4) because such transmitters, it was contended, do not meet the intent of Public Law 91-596 since they require manual erection of the antenna and may fail to operate below 0° C. Furthermore, it was argued that in order to ensure that transmissions are omnidirectional with maximum signal strength, the antenna must be in place and operable in the event of a crash.

The FAA does not agree that use of the personnel type emergency locator transmitter should be prohibited for operations other than those conducted under Parts 121, 123, or 135. Standards for many classes of general aviation equipment, although providing an adequate level of safety, are generally less stringent than those applicable to equipment required for air carriers and commercial operators.

One commentator recommended that only non-automatic personnel type emergency locator transmitters be required, arguing that if the airplane were totally destroyed the transmitter would be also. The commentator described several crash configurations and stated that in those situations where the airplane was not destroyed, the normal airplane communication system or the non-automatic personnel type transmitter would prove to be the most effective emergency devices. It was the feeling of this commentator that the personnel type is more adaptable to more given situations.

The FAA does not agree that the personnel type emergency locator transmitter, whether automatic or non-automatic, should be specified for all operations. If the airplane suffers even minor damage, the electrical system of the airplane might be rendered inoperative, and thus normal communications equipment would be of no value. Even if left intact, use of the electrical system could be dangerous due to the possibility of a fuel leak. In addition, many airplanes are not even equipped with normal communications equipment.

The FAA is aware that externally-mounted transmitter antennas may be damaged in some crash situations, as pointed out by this commentator; however, the probability that they will remain intact, or at least functional, is good.

Another commentator recommended that the requirement that the transmitter be attached to the airplane, appearing in subparagraphs (b)(1)-(4), be deleted. It was argued that in the case of fleet operators who operate only a fraction of their fleet at any given time, this requirement would be unnecessary and burdensome.

In this regard, it should be noted that § 91.52 prohibits the operation of airplanes without an emergency locator transmitter attached. Consequently, the transmitter is not required to be attached when the airplane is in the hangar or parked on the ramp. Therefore, the operator need not attach the transmitter to the airplane until it begins its taxi run preparatory to flight. This will permit the operator to use several transmitters for his entire fleet.

Finally, one commentator recommended use of the word "installed" rather than "attached" because that was the word used in Public Law 91-596 and because it is more definitive. The FAA selected the term "attached to" rather than "installed on" to ensure that the emergency locator transmitter is subjected to crash-inertia forces and is thereby automatically activated. The term "installed on" could be erroneously interpreted to permit the operator to carry the transmitter on his person, or on the seat next to him, where it might not be subjected to the full inertia force in a crash.

Section 91.52(c). Three commentators recommended revision of this proposal to require that personnel type and automatic portable type emergency locator transmitters, also be mounted as far aft as practicable because reliability would be compromised if installed in a non-aft location. Furthermore, it was contended that aft mounting is required by the statute, and no justification exists for excepting any type of transmitter from the requirement.

The FAA considers ready accessibility to be an important safety consideration with regard to personnel type and automatic portable type emergency locator transmitters, and thus, a forward location is permitted for them.

One commentator recommended that the FAA require emergency locator transmitters to be installed "in a manner that complies with the applicable shock requirements of § 37.200(b)." The commentator contended that the proposed language "minimize the probability of damage" was vague, whereas the various RTCA documents referenced in § 37.200(b) specify a suitable criterion for shock resistance.

This requirement is objective, covering many different kinds of attachment methods in various airplanes. On the other hand, § 37.200(b) applies only to the emergency locator transmitter itself and is not related to methods of attachment. This type of requirement is useful in this situation because it permits the exercise of engineering judgment in the field. The proposed language appears elsewhere in the Federal Aviation Regulations and has caused no problems in the past, nor do we anticipate any now.

Section 91.52(d). Several commentators recommended that the "50 percent of useful life" battery replacement criterion be deleted in favor of a requirement that the battery be replaced "at least during each annual inspection." Another commentator suggested that the battery be replaced "every year or at such shorter intervals as is determined by the battery manufacturer's guaranteed useful life." These commentators contended that exposure to prolonged high temperature (as when the airplane is parked in the sun) causes rapid deterioration of the battery, which may render the emergency locator transmitter inoperative before the 50 percent shelf life date is reached.

The FAA does not agree that the alternatives suggested would serve the purpose more effectively than the agency's "half-life" proposal which takes into account probable exposure to temperature extremes and typical decrease in battery capacity when the transmitter is not in use. However, it has been necessary to make a minor revision to conform with previously discussed changes to § 37.200(f)(2) and § 37.200(g)(2) with regard to rechargeable batteries.

Section 91.52(e). One commentator recommended that the proposals in this paragraph to permit the ferrying of airplanes for the purpose of installing or repairing a transmitter, be deleted and replaced with a 30-day grace period. It was argued that under the proposal, operators in remote areas would have to ground their airplanes for long periods while awaiting repair of emergency locator transmitter.

The FAA does not agree that the suggested 30-day grace period is necessary. As is the case with other required equipment, ferry privileges are available for those operators affected by these requirements. In addition, it is expected that relatively few aircraft will be affected by the December 30, 1971, compliance date, and for those that must be equipped by the December 30, 1973, compliance date, we expect service facilities for emergency locator transmitters to be widely available by that time.

Section 91.52(f). Several commentators recommended that proposed paragraph (f) of § 91.52 excepting training flights conducted within a 20-mile radius of base be deleted, stating that once airborne an airplane not equipped with a transmitter, pursuant to this exception, could go beyond the 20-mile limit. Furthermore, it was contended that often the area within such a radius could be such that location of a downed aircraft would be difficult without the emergency locator transmitter. Finally, these commentators expressed concern that the exception could be used as a loophole by those who wish to operate without the transmitter.

The FAA recognizes that this exception (which is expressly prescribed in new Section 601(d)(2) of the Federal Aviation Act of 1958) may present some administrative difficulty, but will defer regulatory action thereon until service experience indicates what, if any, problems may arise.

One commentator recommended that all air carrier aircraft be required to carry an emergency locator transmitter, contending that despite radar surveillance, a number of downed air carrier aircraft were not quickly located.

Except in the case of air taxi and charter airplanes, the FAA does not believe that an emergency locator transmitter requirement can be justified at this time for all airplanes used in air transportation. These airplanes, operated under Part 121, are routinely flown under the operational control of the air carrier by means of flight following procedures, and the large majority of these flights are conducted in accordance with flight plans, along established routes, and into airports that are near high density population areas. In addition, most of these airplanes are equipped with ATC transponders which can be used to signal in an emergency.

Section 91.52(g). The proposals in this paragraph received numerous comments which, generally speaking, recommended that the FAA allow the continued use of emergency locator transmitters approved under existing TSO-C61a. The following "grandfather clause" recommendations were made: permit the use of transmitters approved under TSO-C61a before the effective date of this amendment; permit the use of those so approved and purchased before the effective date of this amendment; and permit the use of transmitters approved by the State of California. In addition, one commentator suggested a cutoff date for the sale of transmitters that do not meet the proposed standards. In support of these recommendations, the commentators made the following arguments: several thousand general aviation aircraft are currently equipped with transmitters approved under TSO-C61a, and the operators of these aircraft relied on the assumption that they were in compliance with an acceptable FAA standard. As such, these persons are entitled to a reasonable transition period in which to comply with the new standards. Furthermore, there is no basis for wholesale condemnation of currently used emergency locator transmitters, even where they are deficient in some respects. In fact, some exceed the requirements in TSO-C61a and approach the proposed standards in all essential respects.

The FAA recognizes the need for an adequate transition period and agrees that appropriate relief is warranted. Accordingly, proposed § 91.52(g) has been revised to permit, until December 30, 1975, the use of an emergency locator transmitter that does not meet the requirements of § 91.52, provided that the transmitter: has been installed and approved before the effective date of this amendment; has been manufactured under a TSO Authorization issued against TSO-C61a; transmits simultaneously on 121.5 and 243.0 MHz; and after the applicable effective date, prescribed in § 91.52(a), is attached to the airplane.

Section 121.339(a)(4) and 121.353(b). Comments similar to those dealt with in the preceding discussion were received with regard to the proposed requirements of Part 121 concerning survival type emergency locator transmitters. These comments pointed out that U.S. air carriers have just recently completed installation of survival type emergency locator transmitters to meet ICAO standards, and thus have entire fleets with new equipment which complies with TSO-C61a, and to require them to now switch over to the new equipment, would be unreasonably burdensome. Furthermore, it was contended that in many cases, currently installed equipment meets, for the most part, the proposed standards of Notice 71-7.

Again, the FAA agrees that relief is justified in this situation and safety will not be adversely affected by permitting certain "grandfather" rights. Accordingly, proposed §§ 121.339(a)(4) and 121.353(b) have been revised to permit, until December 30, 1975, the use of a survival type emergency locator transmitter that does not meet the applicable requirements of § 37.200, provided that that transmitter: has been installed and approved before the effective date of this amendment; has been manufactured under a TSO Authorization issued against TSO-C61a; and transmits simultaneously on 121.5 and 243.0 MHz.

In addition, several commentators made suggestions similar to those discussed previously concerning battery replacement criteria. Accordingly, appropriate changes have been made to these requirements to accommodate rechargeable batteries.

Finally, comments discussing the number of survival type emergency locator transmitters required have been dealt with previously in the discussion of §§ 25.1415 and 29.1415. No further mention is necessary here.

Section 135.163. Again, several comments were addressed to the number of survival type emergency locator transmitters that should be required on an airplane. The discussion of these comments in connection with §§ 25.1415 and 29.1415 is sufficient for the purposes of this section as well.

With regard to battery replacement criteria, the necessary change to accommodate rechargeable batteries has been made in this section.

Finally, the "grandfather" rights discussed previously have been adopted for this section as well.

Interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Parts 25, 29, 37, 91, 121, and 135 of the Federal Aviation Regulations are amended, effective October 21, 1971.

These amendments are made under the authority of sections 313(a), 601, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1424), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–96

Aircraft Registration Eligibility, Identification, and Activity

Adopted: September 22, 1971 Effective: September 30, 1971

(Published in 36 F.R. 19159, September 30, 1971)

The purpose of these amendments to Parts 47 and 91 of the Federal Aviation Regulations is to provide for a shorter period for filing AC Form 8050–73, Aircraft Registration Eligibility, Identification, and Activity Report.

Under § 47.44(a), the holder of each Certificate of Aircraft Registration has been required to report annually concerning his continued eligibility for aircraft registration. He has done this by submitting an Aircraft Registration Eligibility, Identification, and Activity Report, Part 1, AC Form 8050–73, to the FAA Aircraft Registry before July 1 of each year commencing July 1, 1970. Section 91.53(a) provides that the owner of each aircraft registered in the United States should (but is not required to) submit Part 2 of the same form, containing information on the identification of his aircraft and its activity during the previous calendar year, to the FAA Aircraft Registry, also before July 1 of each year commencing July 1, 1970.

Sections 47.44 and 91.53 were adopted January 6, 1970, and made effective March 7, 1970. Some comments in response to the Notice of Proposed Rule Making (Notice 69–37) published in the Federal Register on September 5, 1969 (34 F.R. 14079), recommended that the period for filing should be shortened to 30 or 60 days. However, at the time the provisions were adopted, the FAA anticipated that the first reporting cycle would be more time-consuming for both the FAA and those reporting than subsequent reporting cycles, because of the initial procedural and workload problems within the FAA, the preparation and dissemination of the new FAA form, and the correction of invalid or outdated information by the persons reporting. As forecast in the preamble to the rule when adopted, the FAA has continued its consideration of the length of the reporting period with the expectation of reducing it to a shorter period, such as 30 or 60 days, if feasible. As a result of that consideration, it has been determined that the initial procedural and workload problems no longer exist, and that a shorter period is feasible.

Accordingly, these amendments change the deadline for filing AC Form 8050–73 to April 1 of each year, commencing April 1, 1972, thus providing a shorter, 90-day period for filing. This shorter period is more desirable, because it will allow earlier processing of the reports by the FAA, thus facilitating safety regulatory analysis, current year source allocation, and budgetary planning. Reducing the filing period to 90 days will not impose a burden on the persons reporting, in view of the time actually required to complete the form. In fact, thus far, the FAA has received the bulk of the reports early in the filing period.

In view of the foregoing, and the fact that these minor amendments do not impose a burden on any person, notice and public procedure thereon is unnecessary, and the amendments may be made effective on less than 30 days' notice.

In consideration of the foregoing, Parts 47 and 91 of the Federal Aviation Regulations are amended, effective September 30, 1971, by striking out the phase "July 1 of each year commencing July 1, 1970" in the lead-in portions of § 47.44(a) and § 91.53(a) and substituting the phrase "July 1 of each of the years 1970 and 1971 and April 1 of each year thereafter" therefor in each place.

(Sections 103, 307, 311, 312, 313(a), 501, 601(a)(6), 609, and 901 of the Federal Aviation Act of 1958; 49 U.S.C. 1303, 1348, 1352, 1353, 1354(a), 1401, 1421, 1429, 1471. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c). Section 1.47(a) of the Regulations of the Office of the Secretary of Transportation.)

Amendment 91-97

Altitude Alerting System or Device

Adopted: February 28, 1972 **Effective: March 2, 1972**

(Published in 37 F.R. 4326, March 2, 1972)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to increase the number of those operations excepted from the altitude alerting system requirements of § 91.51 and to make an editorial change in § 91.49.

This amendment is based on a notice of proposed rule making (Notice 71-38) published in the Federal Register on November 20, 1971 (36 F.R. 22180).

Specifically, this amendment adds to paragraph (d) of § 91.51 exceptions for operations conducted with experimentally certificated airplanes; airworthiness flight tests of an airplane: ferrying an airplane to a place outside the United States for the purpose of registering it in a foreign country: sales demonstration of the operation of an airplane; and training flights for the purpose of training foreign flight crews in the operation of an airplane.

The FAA does not agree with comments which recommended that requirements for an altitude alerting system be made less stringent for aircraft requiring two pilots, since experience has indicated that detection of critical altitude deviations is not assured solely by the presence of more than one pilot.

With respect to § 91.51(d)(2), it is our opinion that safety considerations do not justify relaxing § 91.51(d)(2), as certain comments suggested, to permit aircraft to be flown from a place where repairs or replacements can be made to the operator's normal or usual maintenance facility, In this regard, it should be pointed out that the exception prescribed in paragraph (d)(2) is intended to cover the situation in which the altitude alerting system becomes inoperative after takeoff and, in such an event, to permit the flight to be continued as planned rather than rerouted to a place where repairs or replacements can be made. However, if during that flight a landing is made at any place where repairs or replacements can be made, it is intended that the flight not depart from that place until they have been made. The wording of current and proposed § 91.51(d)(2) has been changed to more clearly reflect this intent of the rule.

It is the intent of § 91.51(d)(7) to permit the training of foreign flight crews in the operation of an airplane only if that particular airplane is to be subsequently ferried to a place outside the United States for the purpose of registering it in a foreign country. This intent is clarified in the rule adopted herein.

Section 91.49, which requires a transport category airplane to be equipped with an aural speed warning device, contains an obsolete reference to "§ 25.1303(a)(11) and (b)." That reference is changed by this amendment to read "§ 25.1303(c)(1)."

With the exception of the editorial change included in this amendment, interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all matter presented.

This amendment is relaxatory with respect to operations excepted from the requirement for an altitude alerting system and makes an editorial change that imposes no additional burden on any person. Accordingly, I find that notice and public procedure on the editorial change are unnecessary and that good cause exists for making this amendment effective on less than 30 days notice.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective March 2, 1972.

This amendment is issued under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–98

Helicopter Procedures

Adopted: March 20, 1972 **Effective: April 27, 1972**

(Published in 37 F.R. 6286, March 28, 1972)

These amendments to Parts 91 and 97 of the Federal Aviation Regulations make a minor revision to IFR rules to accommodate helicopter minimums, add appropriate definitions and terminology concerning helicopter procedures, and add a new subpart to Part 97 to reference helicopter procedures that are published from time to time.

These amendments are based on a Notice of Proposed Rule Making, Notice 71–18, published in the Federal Register on July 8, 1971 (36 F.R. 12865). Six public comments were received in response to the Notice and although all were in support, some recommendations for minor changes were received. One commentator stated that, as proposed, there was an inconsistency between § 97.3(d–1) and Table 7, Chapter 3 of TERPS in that the former associated 1,200 RVR with one-quarter mile visibility and the latter associated 1,600 RVR with one-quarter mile visibility.

The FAA does not believe that this requirement creates an inconsistency. RVR 1,200 and 1,600 have both been associated with one-quarter mile visibility depending on limiting conditions. For example, TERPS Chapter 11, section 3, paragraph 1128 authorizes the 1,200 RVR value for precision approach procedures where RVR is approved and minimums have been reduced to one-quarter mile. The RVR 1,200 value has also been approved with Category II ILS authorizations at one-quarter mile visibility. Accordingly, the FAA believes that the maneuverability of the helicopter permits use of RVR 1,200.

Another commentator recommended that the visibility prescribed, in proposed § 97.3(d–1) be reduced to one-eighth mile. In response to this comment, it should be noted that, as adopted, § 97.3(d–1) applies to minimums published for aircraft in approach Category A. This does not preclude the publishing of lower minima at a later date with special considerations for helicopters if properly equipped. However, the FAA does not believe that a reduction to one-eighth mile visibility for helicopters is appropriate at this time.

In addition, as adopted, § 97.3(d–1) has been changed to indicate that helicopters may use the Category A decision height (DH) as well as the minimum descent altitude (MDA). Finally, as proposed, a new section has been adopted to make it possible for the establishment, in the future, of helicopter procedures. As adopted, that section is designated § 97.35 rather than § 97.34 as proposed, in order to maintain the numerical sequence of Subpart C. Also in this connection, § 97.23 has been amended to indicate that VORTAC procedures will be prescribed as a part of that section.

Interested persons have been given an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant matter presented.

In consideration of the foregoing, Parts 91 and 97 of the Federal Aviation Regulations are amended, effective April 27, 1972.

These amendments are proposed under the authority of sections 307, 313(a), and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), and 1421), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–99

Special VFR Weather Minimums

Adopted: May 12, 1972 **Effective: June 22, 1972**

(Published in 37 F.R. 10435, May 23, 1972)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to limit the use of Special VFR by pilots of fixed wing aircraft to daylight hours except where the pilot is instrument rated and currently qualified and his aircraft is equipped for IFR flight. The amendment was proposed in Notice No. 71–23, published in the Federal Register on August 27, 1971 (36 F.R. 17052).

A total of 241 comments were received in response to the Notice from private individuals, aviation user groups and associations, governmental bodies and the military services.

Many comments supported the proposal. Of the comments opposed to the proposal, some 48 individuals appeared to be responsive to an article in an aviation magazine which assumed that the proposal meant that all night Special VFR operations would be conducted as IFR operations, thereby overloading the IFR system and causing unnecessary delays to pilots. This assumption is erroneous. The amendment does not eliminate night Special IFR operation. It merely requires IFR capability of the pilot and aircraft conducting those operations. Thus it does not create any additional impact upon the IFR system.

The comments of other individuals opposed to the proposal were generally to the effect that Special VFR is intended for those not IFR qualified; that the advantages of Special VFR far outweigh any abuse or misuse of the procedure; that further restriction of Special VFR will not compensate for errors in planning, judgment or training; that pilots operating VFR in smoggy areas will be seriously affected by restricting Special VFR operations for noninstrument qualified pilots and aircraft to daytime only; that if a pilot is caught in poor weather, he should have access to airports with the best navigational aids and these are generally located in control zones.

While the FAA recognizes the concern of these commentators, it cannot agree that the points raised override the safety considerations spelled out in the notice. In fact, many of the points raised by the commentators only underscore the hazards inherent in night Special VFR operations by pilots and aircraft incapable of IFR flight. In an emergency, of course, any airport or facility in the system would be available to the pilot.

Of the seven General Aviation Associations commenting on the proposal, six concurred with it. One commentator opposed the proposed change stating that such a change would seriously hamper Alaskan operations because of conditions peculiar to that region, such as long distances between airports and very short days in winter. The FAA agrees that the unique Alaskan day-night situation requires accommodation and the rule reflects this.

A substantial number of business and corporate commentators supported the proposal.

Other user groups commenting in support of the proposal represented airline pilots, air carrier operators, and military aviation users. Two State aviation commissions concurred and a third partially supported the proposal. One commentator endorsed the proposal but urged, as did a large number of other commentators, that the restriction be extended to daytime Special VFR operations as well. This comment also suggested that consideration be given to employing minimum ceiling values in establishing Special VFR criteria.

In consideration of the foregoing and for the reasons stated in Notice No. 71–23, § 91.107 of the Federal Aviation Regulations is amended, effective June 22, 1972, by adding a new paragraph (e).

Sections 307(c) and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c) and 1354(a)), and section 6(c) of the Department of Transportation (49 U.S.C. 1655(c)).

Amendment 91–100

Parachute Riggers; Testing and Privileges

Adopted: June 26, 1972 **Effective: August 5, 1972**

(Published in 37 F.R. 13251, July 6, 1972)

The purpose of these amendments to Parts 65 and 91 of the Federal Aviation Regulations is to: (1) Provide that an applicant who fails a test for parachute rigger certificate may be retested upon the additional instruction and statement of a certificated senior parachute rigger; (2) provide that an applicant for a parachute rigger certificate may receive supervision on meeting his experience requirements from a certificated senior rigger; (3) change the requirements for applicants for master parachute rigger certificates; and (4) provide that a certificated senior parachute rigger may supervise other persons in packing any type of parachute for which he is rated. Also, two minor additional amendments are made to Part 65, and a definition of "approved parachute" is added in Part 91.

Interested persons have been afforded an opportunity to participate in the making of these regulations by a Notice of Proposed Rule Making (Notice 70–31) issued on July 24, 1970, and published in the Federal Register on July 31, 1970 (35 F.R. 12285). Due consideration has been given to all comments presented in response to that Notice.

Seven of the nine commentators (six of them holding master parachute rigger certificates) opposed allowing an applicant for a parachute rigger certificate who fails a written, oral, or practical test to receive additional instruction from a certificated senior parachute rigger, or allowing supervision by a senior rigger in parachute packing to be credited toward meeting an applicant's experience requirements for certification. These adverse comments generally contended that senior riggers lack sufficient knowledge and experience to instruct or supervise other persons. The FAA does not agree with these assertions.

Under § 65.19(a), an applicant for a parachute rigger certificate who fails any of the prescribed tests may not apply for retesting until 30 days after the date he failed that test. However, previously under § 65.19(b)(4), if the applicant presented a statement from a certificated master parachute rigger, certifying that he gave the applicant at least 5 hours of instruction in the subjects failed and considered the applicant ready for retesting, the 30-day period did not apply. Section 65.19(b)(4) is now changed to allow the applicant to go to a certificated senior parachute rigger for this purpose. Since only a limited number of master parachute riggers are available, this change provides a wider group of qualified parachute riggers from whom the applicant may receive additional instruction before retesting. Whether the applicant waits the 30 days or receives the 5 hours of additional instruction from a qualified parachute rigger, he still must pass the prescribed tests before being eligible for a parachute rigger certificate and associated ratings.

These amendments to paragraph (a) of §§ 65.115, 65.123, and 65.125, as well as to § 65.19(b)(4), recognize that a certificated senior parachute rigger who is qualified to pack a parachute upon which a wearer may rely as a life-saving device would also have sufficient knowledge and experience to instruct and supervise other persons in packing that parachute. Furthermore, with respect to supervising parachute packing, under § 65.129(e) each certificated rigger, whether he holds a senior or master parachute rigger certificate, must pack a parachute for which he is rated in a manner that does not deviate from the procedures approved by the Administrator or the manufacturer of the parachute.

The commentators generally favored reducing the required time period of experience for a master parachute rigger certificate applicant from 5 to 3 years although several suggested that any requirement should be based on actual experience and proficiency rather than a period of time over which the experience was acquired.

One commentator proposed that a senior parachute rigger should have a minimum period of experience and instructional capability before crediting any instruction received from him, and another suggested establishing a separate certificate for parachute rigger

instructors. These suggestions are beyond the scope of the notice, but they will be fully considered by the FAA for possible future rule-making action.

The notice proposed removing from § 65.125(b) the word "instruct" as unnecessary, and the phrase "in the proper methods and procedures of construction" and the word "using" as obsolete. Paragraph (b)(2) in § 65.115, and § 65.119 as proposed in the notice, also referred to "use" as a subject covered in the written tests for senior and master parachute rigger certificates, respectively. However, questions on the "use" of parachutes have long been omitted from the actual written tests as not pertaining to parachute packing and maintenance. Accordingly, subparagraphs (b)(2) of § 65.115, and of § 65.119 as proposed in the notice, are amended by removing "use" as a subject in the written tests.

Additionally, paragraph (b) of § 65.115, and paragraph (b) of § 65.119 as proposed in the notice, provided that the written tests an applicant for a senior or master parachute rigger certificate must pass must cover one type, and two types, respectively, of parachutes in common use. Since 1950, all written tests have been directed to parachutes in general, rather than to any specific type. Accordingly, paragraph (b) of § 65.115 and of § 65.119 are amended to remove references to one type and two types of parachutes, respectively.

Both of these amendments to § 61.115(b) involve minor regulatory changes on which notice and public procedure are unnecessary.

In consideration of the foregoing, Parts 65 and 91 of the Federal Aviation Regulations are amended, effective August 5, 1972.

(Sections 313(a) and 601 of the Federal Aviation Act of 1958; 49 U.S.C. 1354(a), 1421. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c)).

Amendment 91–101

Large and Turbine-Powered Multiengine Airplanes

Adopted: July 17, 1972 **Effective: October 23, 1972**

(Published in 37 F.R. 14758, July 25, 1972)

The purpose of this amendment is to add a new Subpart D to Part 91 prescribing general operating rules for large or turbojet-powered multiengine airplanes and an inspection program for large and turbine-powered multiengine airplanes (turbopropeller and turbojet-powered). The inspection program also applies to turbine-powered multiengine airplanes operated by the holder of an ATCO certificate under Part 135.

Interested persons have been afforded the opportunity to participate in the making of these regulations by a Notice of Proposed Rule Making issued as Notice 71-32 on October 7, 1971 (36 F.R. 19507). Approximately 275 comments were received from various individuals, aeronautical associations and government agencies in response to that Notice. The comments have been very helpful in resolving the many issues involved in the formulation of this final rule.

Comments received from the National Business Aircraft Association (NBAA) were directed to two aspects of the Notice. The kind of operations that could be conducted under § 91.181 of the proposal, and the operations and inspection rules set forth in §§ 91.183–91.219. With respect to the first aspect of the rules, NBAA recommended changes in the applicability of Subpart D to include a fuller use of aircraft in private carriage. If a fuller use of the aircraft is permitted, the NBAA favors the safety rules set forth in §§ 91.183–91.219, with certain changes described in detail herein.

Comments received from other associations and government agencies ranged from a qualified opposition to a complete agreement with the proposed rules. For example, the Aircraft Owners and Pilots Association believes the rules should apply to a corporate operator, but not to a private operator. The General Aviation Manufacturing Association believes the rules should apply to airplanes having 10 or more passenger seats since the 12,500 pound dividing line is no longer valid. The Air Transport Association believes the rules should only apply to operators of aircraft who do not hold an air carrier operating certificate, and ferry flights, training flights, check flights, etc., conducted by the holders of those certificates should be excepted from the proposed rules. The National Air Transportation Conference believes the rules should apply only to passenger-carrying aircraft. At the other end of the spectrum, the Air Line Pilots Association and the Chicagoland Business Pilots Association support the proposed rules as a step toward improving air safety for all operators. The National Transportation Safety Board favors the rules, while the British Air Registration Board recommends that the takeoff runway requirements of proposed § 91.205 be replaced with a rule similar to § 91.37(b) and (c).

Approximately 250 comments were received from individuals and corporations. While most of the comments received from the corporate operators endorsed the position of the NBAA, some of those comments recommended different or additional changes. A few commentators were opposed to all the proposed operating or safety rules, except those rules requiring flying equipment and flight attendants for passenger-carrying aircraft.

Many of the commentators expressed the opinion that the subpart should not apply to small turbopropeller-powered multiengine airplanes. It is their opinion that some small supercharged reciprocating engine-powered airplanes have performance capabilities similar to small turbopropeller-powered airplanes. Yet, under the proposed rules those reciprocating engine-powered airplanes would not be required to be operated under the provisions of Subpart D. Upon further consideration we are persuaded that there is no demonstrated need at this time to require small turbopropeller-powered multiengine airplanes to be operated under the rules of Subpart D. This decision, however, does not apply to the inspection program requirements which, in our opinion, should be required for all turbine-powered multiengine airplanes (turbopropeller- and turbojet-powered airplanes) as proposed in the notice. Section 91.181(a) as adopted herein reflects this change in the applicability of Subpart D.

For many years the term "compensation," as used in the definition of a commercial operator and the applicability provisions of Part 121, has been construed in its legal sense which does not limit that term to an element of profit, but includes any reimbursement for the expenses for the operation of the aircraft. Comments received from the corporate operators strongly urged a change in that policy. They contend that in most cases involving wet lease agreements (lease of an aircraft with flight crew) a charge is made for the operating expenses of the aircraft solely for the purpose of complying with the requirements of the U.S. Internal Revenue Service—not for the purpose of making a profit. Therefore, in response to the request for comments in regard to time sharing and interchange agreements, these commentators urged that a monetary charge be permitted under either of these arrangements, so long as there is no profit motive involved in the charges made.

As stated in the preamble to NPRM 71-32 the decision to proceed with the upgrading of Part 91 for large and turbine-powered multiengine airplanes is an important threshold step in the FAA policy to remove, to the extent possible, those differences in the safety standards that a primarily economic in nature and result in unnecessary restrictions or limitations on aircraft operators. In accordance with that policy the need for different, or additional safety standards for corporate operations should be resolved on the basis of safety, rather than economics or juristic semantics. Safetywise, we have determined that neither the relationship of the corporations nor the type of compensation received for the services rendered should be relevant or controlling under the standards of the new Subpart D for the various corporate kinds of operations that do not involve common carriage.

In order to make this change in policy clear to all interested persons, § 91.181(b) includes a list of the kinds of operations that may be conducted under Subpart D. In addition, § 91.181(c) of Subpart D expressly provides that charges covering the normal operating expenses of the aircraft and salary of the crew may be made under a time sharing or interchange agreement as defined in that section. This policy also applies to a corporation regardless of its relationship, if any, to the corporation for which the carriage is conducted. Accordingly, the application of Subpart D to a corporate operator will no longer be dependent upon whether that operator is a parent or subsidiary corporation, or a member of a conglomerate. It should be noted, however, that if a corporation is established solely for the purpose of providing transportation to the parent corporation, a subsidiary, or other corporation, the foregoing policy does not apply. In that case, the primary business of the corporation operating the airplane is transportation and the carriage of persons or goods for any other corporation, for a fee or charge of any kind would require the corporation operating the airplane to hold a commercial operator certificate under Part 121 or 135, as appropriate.

Some of the commentators requested expansion of the applicability of Subpart D to permit a jointly owned airplane to be operated under the safety standards of that subpart when the flight crew is furnished and employed by one of the joint owners. In regard to such operations we have concluded that if the flight crew is employed and furnished by one of the joint owners and continues in the employ of that owner when the airplane is used by another joint owner, it will be presumed that the joint owner employing and furnishing the flight crew is the operator of the airplane within the meaning of the Federal Aviation Regulations. Unless otherwise agreed to by the owners, he is responsible for compliance with the safety regulations applicable to that flight, even though the joint owner using the airplane at the particular time has the authority to specify the destination of the flight and the persons or cargo that may be carried on that flight. Safetywise, we perceive no reason under those circumstances to require the joint owner, as the operator of that airplane, to hold a commercial operator certificate. Accordingly, § 91.181(c) has been amended to permit such operations to be conducted under Subpart D. If any charge is made by the operator in excess of the normal operating expenses of the flight, including fuel, oil, hangar and landing fees, and salary of the crew, the operation, of course, may not be conducted under Subpart D. When such charges are made, the operator must hold a commercial operator certificate and conduct the operation under the provisions of Part 121 or 135, as appropriate.

The carriage of persons on an airplane for the purpose of selling to them land, goods, or other property (including franchises) was described in the preamble to NPRM 71-32 as a corporate aircraft operation. However, the preamble did not further articulate the FAA policy in regard to such operations when conducted as an incident to the business of the coporation operating the aircraft. In recent years there has been an increase in the use of corporate aircraft for the carriage of prospective customers, especially as an incident to the business of real estate development and sales. It has been the policy of the FAA to permit the corporation to transport those customers on its aircraft without holding a commercial operator certificate, so long as no charge is made for the transportation and common carriage is not involved. It is our opinion that this policy should be continued without change. Accordingly, § 91.181(b)(9) of the rule as adopted herein expressly permits the carriage of prospective customers under the rules of Subpart D. However, no charge of any kind may be made for that carriage, regardless of whether the charge represents the customer's pro rata operating expenses for the flight, or a loss. To permit a charge of any kind for the carriage of the customers would require constant suveillance and time consuming investigations by FAA inspectors to determine if the charge represents an amount that is permitted under the regulations, or is in fact considered compensation as that term is used in the definition of a commercial operator. Moreover, it should be noted that such operations may, under certain circumstances, result in the carriage of persons as a common carrier for compensation or hire. In that event, the person operating the airplane may be required to hold a certificate of public convenience and necessity or other appropriate economic authority from the Civil Aeronautics Board in addition to an air carrier operating certificate from the Administrator.

The preample to NPRM 71-32 stated that a GENOT was issued by the FAA to make it clear that a "manufacturer" or "aircraft sales company" did not need a commercial operator certificate to demonstrate aircraft in flight to a prospective customer when that customer is charged a fee to defray the normal operating expenses of the flight, including fuel, oil, hangar or landing fees, and salary of the flight crew. In our judgment the authorization should be equally applicable to the owner of the aircraft regardless of whether he is a manufacturer or aircraft salesman. For this reason the language of § 91.181(b)(3), as proposed in the notice, did not limit such authorization to a "manufacturer" or "aircraft sales company." Since there were no objections to that proposal, the rule as adopted herein permits such customer demonstrations by the owner of the airplane as well as the manufacturer, or sales company.

Inasmuch as the foregoing policies permit a greater use of corporate aircraft under joint ownership, time sharing, and interchange agreements, it appears desirable to restate herein the FAA policy in regard to the operation of an airplane under those agreements when they constitute a wet lease (the lease of an aircraft with flight crew). When the leessor furnishes both the aircraft and flight crew, there is a presumption that the operational control and safety responsibility for the aircraft remains in the hands of the lessor during the lease agreement and he becomes the operator of the aircraft as that term is used in the Federal Aviation Regulations. This policy conforms with the policy recently adopted by the Civil Aeronautics Board in those cases involving the lease of aircraft with crew by foreign air carriers or other foreign persons (14 CFR Part 218, as amended by ER-716; 36 F.R. 23146).

Whenever the aircraft and flight crew are furnished by separate and unrelated persons, as stated in the preamble to NPRM 71-32, it is presumed that the lessee of the aircraft is the operator of that aircraft within the meaning of the Federal Aviation Regulations. This presumption is not true, however, when the person furnishing the flight crew exercises control over all phases of the operation of the aircraft requiring any aviation expertise, and leaves to the lessee of the aircraft only those decisions normally made as to what and who is transported. Under those circumstances, the National Transportation Safety Board has upheld the FAA's position that the person furnishing the flight crew is the operator of the aircraft.

In an effort to make the parties to a lease agreement more fully aware of their responsibilities, the FAA recently proposed an amendment to § 91.54 of the FAR's that would require a "truth in leasing" clause to be inserted in leases involving certain aircraft (NPRM 71-35; 36 F.R. 20768). Among other things, the truth-in-leasing clause inserted in the lease would identify the person responsible under the lease for the operation of the aircraft, and contain a certification by that person that he understands his responsibility for compliance with the applicable Federal Aviation Regulations. The proposed rule would also require a copy of the lease to be carried in the leased aircraft and made available for review upon request by the Administrator. If adopted, this rule should preclude the unintentional assumption of responsibility for operation of an aircraft by either party to the lease agreement.

In view of the comments received in response to the Notice, another change in the applicability of Subpart D was made. This change involved the carriage of goods or property on an airplane as an incident to a business other than transportation. Although it has been the policy of the FAA to permit a manufacturer to carry his materials from one factory to another for processing into a finished product, that policy did not further permit the carriage of the finished product to a customer or a distributor if a charge, direct or indirect, was made for such transportation. While this limitation rested upon a proper legal interpretation of the term compensation, it is no longer necessary under the safety standards of Subpart D. Accordingly, under the rules as adopted herein, the FAA will permit the carriage of property (other than mail) on an airplane operated by a person in the furtherance of a business (other than transportation), when the carriage is incidental to that business and no charge is made for that carriage in excess of the normal operating expenses of the flight. Athough this change in policy permits a greater use of an airplane as an incident to a business or profession, it does not change the FAA policy in regard to the carriage of goods or property by airplane when such carriage is the primary business of the operator of that airplane. When such carriage is in fact a major enterprise in itself, it may not be conducted by any person unless he holds an operating certificate under Part 121 or 135, as appropriate.

As previously stated, one commentator recommended that the rules in Subpart D should not apply to ferry or training flights conducted by an air carrier or commercial operator holding an operating certificate under Part 121. The language of § 91.181 of the proposed subpart expressly applies to ferry or training flights since those flights are not required to be conducted under the rules of Part 121 or 135 of the Federal Aviation Regulations. If those flights are also excepted from the operating rules of Subpart D, it would result in a dual standard of safety for large airplanes or turbojet-powered multiengine airplanes when passengers or cargo are not carried for compensation or hire. Such a policy is undesirable and would defeat the purpose of the rules prescribed in Subpart D. However, to the extent that a particular rule in Subpart D is not appropriate for a ferry or training flight, the rule includes an exception for those flights.

The recommendation that Subpart D applies to aircraft having 10 or more passenger seats, rather than large airplanes as defined in Part 1 of the Federal Aviation Regulations, goes beyond the scope of the Notice and is not discussed herein.

The descriptive list in § 91.181(b) containing the kinds of operations that may be conducted under Part 91 and Subpart D applies to large and turbojet airplanes. Although this list appears to be equally applicable to small and other airplanes not covered by Subpart D, for the convenience of all operators a separate rule-making action will be initiated to expressly include that list and any changes thereto that are deemed appropriate for such airplanes in Subpart A of Part 91.

Operating rules. In order to facilitate discussion of the safety rules as adopted herein, each rule is listed under a separate heading and discussed in the light of the comments received.

1. *Flying equipment and operating information.* The bulk of the comments received supported the provisions of § 91.183 as proposed. However, two changes have been made to that section. In order to preclude the use of a penlight or other inadequate light as a substitute for the type of flashlight normally carried on an airplane for emergency use, § 91.183(a)(1) has been changed to require a flashlight having at least two size

"D" cells or equivalent. A new paragraph (d) has been added to make it clear that the equipment prescribed in that section is to be used by the pilot in command and other members of the flight crew, when appropriate. Finally, to correct a typographical error in § 91.183(a)(4) as proposed, the comma appearing after the symbol VFR has been deleted. As corrected the equipment specified in that subparagraph applies to "IFR, VFR over-the-top, or night operations."

2. *Familiarity with operating limitations and emergency equipment.* With the exception of approximately seven comments, all comments received supported the provisions of § 91.185 as proposed. Those comments received in opposition to this section were not opposed to the substance of the rule, but the policy of issuing a rule containing what they believe to be a good operating practice. We disagree with such a regulatory policy for those practices that must be accomplished for the safety of the flight; accordingly, the rule is adopted without change.

3. *Equipment requirements: Over-the-top, or night VFR operations.* No substantive comments were received in response to the provisions of § 91.187 and it is adopted without change.

4. *Survival equipment for overwater operations.* Several changes were made to the provisions of § 91.189 in response to the comments received.

The first change involves the substitution of "more than 30 minutes flying time or a horizontal distance of more than 100 nautical miles from the nearest shoreline" for the term "extended over-water operations" (defined in Part 1 of the FAR's to mean a horizontal distance of more than 50 nautical miles from the nearest shoreline).

Comments received in response to the proposal strongly urged the increased distance for general aviation operations. As pointed out in some comments such equipment because of its weight is not kept on board an airplane permanently, but is usually rented and installed in the airplane when needed for a particular flight. Therefore, if the provision is adopted as proposed, the general aviation operators would be unable to use certain offshore routes now designated beyond 50 nautical miles from shore, unless they carried the required survival equipment which, they contend, would place an unnecessary weight restriction on their airplanes for operation over such routes. Moreover, as pointed out by some commentators, section 6.3.3 of Annex 6 to the Convention on International Civil Aviation only requires life saving rafts and survival radio equipment when the flight over water is more than 100 nautical miles from the shoreline for a single engine airplane, and more than 200 nautical miles for multiengine airplanes with one engine inoperative performance. We are persuaded in the light of the comments received to increase the offshore distance from 50 to 100 nautical miles, but such equipment will also be required, regardless of the distance from the shoreline, if the flight is more than 30 minutes flying time from the nearest shoreline.

Paragraph (a) of § 91.189 as adopted herein still requires a life preserver or approved flotation means for each occupant of the airplane when a takeoff is made for a flight over water more than 50 nautical miles from the nearest shoreline. This distance conforms with the requirement for such equipment specified in § 6.3.3 of Annex 6. As used in § 91.189, an approved flotation means includes such means as buoyant seat cushions or other means that meet the requirements of TSO–C72.

To avoid the possibility of an unintentional violation by those pilots who find it necessary to fly over water beyond the distances specified in § 91.189 due to an ATC vector, or route change to avoid adverse weather, the rule requires the equipment only for a planned or intended flight over water beyond the distances specified.

The third change to § 91.189 involves the provision in paragraph (b) requiring the installation of the life rafts and other equipment in conspicuously marked and approved locations. The commentators point out that this requirement is inappropriate for those airplanes carrying equipment which is rented and installed on the airplane only for the duration of a particular trip. Upon reconsideration of that proposal, in the light of the comments received, we agree that the requirement for the stowage of the equipment in an approved location may be eliminated. However, we are not persuaded that the requirement for the conspicuous marking of the location at which the equipment is installed should be changed.

5. *Radio equipment for overwater operations.* For the reasons stated in item 4, the radio equipment requirements of § 91.191 have also been changed to require that equipment for a takeoff of a flight over water that is planned or intended to be conducted over water more than 100 nautical miles or 30 minutes flying from the nearest shoreline.

A new paragraph (c) has been added to the rule as adopted to permit operation of the flight under certain conditions when the specified items of equipment malfunction or become inoperative.

Most of the comments received did not favor the marker beacon receiver required by the proposed § 91.191(a)(4). Upon further review of this requirement the FAA agrees that a requirement for a marker beacon receiver would serve no useful purpose except in those areas where there are adequate marker beacon facilities on the surface. Such facilities do not exist for operations over water.

It is our opinion, however, that a marker beacon receiver should be required for all IFR flights in other areas having marker beacons. Since such a requirement goes beyond the scope of the proposed § 91.191, the FAA intends to cover the substance of such a proposal in a separate rule making action.

In response to the suggestion of one commentator, the term "ground facility" has been changed to "surface facility" because the requirements of that section deal with overwater operations.

6. *Emergency equipment.* Many of the commentators recommended the following changes in the proposed § 91.193:

(a) Require the hand fire extinguisher specified in § 91.193(c)(2) to be located convenient to the flight deck, instead of on the flight deck.

(b) Require the hand fire extinguisher specified in § 91.193(c)(3) on airplanes accommodating more than nine passengers, instead of six passengers as proposed in that section.

(c) Delete the requirement in § 91.193(e) for a crash ax.

Upon further review, the FAA agrees that § 91.193(c)(2) should permit greater flexibility for the physical location of the hand fire extinguisher required by that section. Accordingly, that section has been changed to require one hand fire extinguisher located on or near the flight deck in a place that is readily accessible for use by the flight crew. However, we are not persuaded that the hand fire extinguisher requirement should be modified to require such an extinguisher in the passenger compartment of an airplane that accommodates nine or more passengers, instead of more than six passengers as proposed in the Notice.

The crash ax requirement has been retained in § 91.193(e) for those airplanes accommodating more than 19 passengers. Thus, any airplane for which one or more flight attendants may be required under § 91.215 will be equipped with a crash ax for use in an emergency.

7. *Flight altitude rules.* Most of the commentators urged the FAA to lower the minimum VFR altitude proposed in § 91.195 from 1,000 feet above the surface to 500 feet above the surface. This change, some pointed out, would conform with the minimum altitude of 500 feet prescribed in § 135.91 for air taxi operators. Others recommended that the minimum altitude rule also include an exception for pipeline patrol, aerial surveying, and other operations for which low level flying is necessary. Those comments appear to be based on a misunderstanding of the rule. Under the provisions of § 91.195(b)(2) as proposed and as adopted herein, such operations could be conducted under a waiver issued in accordance with the provisions of § 91.63.

We are not persuaded that the minimum altitude for VFR operations should be lowered to 500 feet above the surface. This is especially true since the subpart applies to large and turbojet-powered multiengine airplanes. Therefore, for the reasons stated in the preamble to the Notice, § 91.195 prescribes a 1000-foot minimum flight atitude for VFR.

8. *Smoking and safety belt signs.* The majority of the commentators expressly favored the provisions of proposed § 91.197. Therefore, for the reasons stated in the preamble § 91.197 is adopted as proposed.

9. *Passenger briefing.* Many of the corporate aircraft operators stated that repetitive briefings of the same passengers in regard to the same airplane are unnecessary and serve no useful purpose. The FAA agrees that repetitive briefings of those passengers who fly with the same pilots in the same airplanes on a frequent or regular basis is unnecessary. It was not intended in the proposed rule to require such repetitive briefings. To make this clear, the language of § 91.199(b) expressly provides that an oral briefing need not be given when the pilot in command determines that the passengers are familiar with the contents of the briefing. This authority of the pilot in command will eliminate the need for repetitive oral briefings to the same passengers.

10. *Carry-on baggage.* Only seven comments were received in opposition to the provisions of proposed § 91.201. The comments stated that in the case of some small turbine-powered multiengine airplanes, suitable compartments would not be available for the stowage of carry-on items such as brief cases and tape recorders used en route by company officials. Since this section only applies to those airplanes having a seating capacity of more than 19 passengers, we preceive no reason why adequate space should not be made available for the stowage of carry-on baggage when that baggage is not being used on the airplane. Accordingly, the rule is adopted as proposed.

11. *Carriage of cargo.* Seven comments were received in general opposition to the provisions of proposed § 91.203. However, the vast majority of the comments received concurred with the rule. For the reasons set forth in the Notice, the rule is adopted herein without change.

12. *Operating limitations: Takeoff limitations for transport category airplanes.* Most of the commentators urged that the rule should give the pilot in command of the airplane final authority to determine whether the length of the runway is adequate to stop the airplane as required by § 91.205. They contend that this authority is necessary since runway gradient and other necessary information may not be available for some airports now used by the general aviation operators. As stated in the preamble to NPRM 71-32, the proposed §91.205 was intended to prescribe takeoff accelerate-stop distance limitations for reciprocating engine-powered transport category airplanes similar to those prescribed in § 121.177(a)(1) for air carriers and commercial operators. Section 91.37 now provides that no person may take off any transport category airplane (other than a turbine engine powered airplane certificated after September 30, 1958), unless (1) the takeoff weight does not exceed the authorized maximum takeoff weight for the elevation of the airport of takeoff; and (2) the elevation of the airport of takeoff is within the altitude range for which maximum takeoff weights have been determined.

We believe the requirements of § 91.37 together with those in § 91.5 provide an adequate level of safety for takeoff of a transport category airplane (other than a turbojet-powered multiengine airplane certificated after September 30, 1958) without the need of the accelerate-stop distance limitations proposed in § 91.205. In place of those limitations, § 91.205 as adopted herein merely contains a cross reference to the weight limitations for transport category airplanes prescribed in § 91.37.

13. *VFR fuel requirements.* Most of the comments received in response to the VFR fuel requirements proposed in § 91.207 recommended a fuel reserve of 30 minutes at 1,500 feet above ground level (AGL). Although a reserve of 30 minutes for VFR operations is adequate, the computation of that fuel at 1,500 feet AGL may place an undue burden upon the operators. Accordingly, § 91.207 as adopted herein requires a fuel reserve of at least 30 minutes for VFR operations.

14. *Operating in icing conditions.* Most of thecommentators recommended that § 91.209 should be changed to permit the pilot of an airplane to have final authority to make the flight if he believes after an evaluation of the available data and other pertinent factors that the flight can be conducted safely.

Under the provisions of that section, as proposed, the pilot may ignore a forecast of icing conditions if the current weather reports and other briefing information indicate that the icing conditions reported in the forecast will not be encountered en route. We believe that further authority for the pilot to ignore reports of icing conditions that may be encountered en route may establish a questionable operating practice.

Some of the commentators felt that the proposal in § 91.209(b)(1) restricting flights into a known or forecast "light" icing condition was unnecessary. We agree and have removed that restriction from the rule as adopted herein.

15. *Flight engineer requirements.* Most of the commentators did not express a recommendation for or against the flight engineer requirement in proposed § 91.211. Some commentators, however, were of the opinion that the rule was unnecessary since the need for a flight engineer on an airplane is determined during its type certification based upon cockpit configuration, pilot workload ,and other pertinent factors.

Part 121 requires a flight engineer on certain airplanes certificated before January 2, 1964, with a maximum certificated takeoff weight of more than 80,000 pounds, even though a flight engineer is not required as a part of the type certification of those airplanes. This decision was reached after extensive study and evaluation and is still applicable to those airplanes when operated under Part 121. We are not persuaded that a flight engineer is not needed on those airplanes simply because they are not operated under Part 121. Accordingly, the provisions of § 91.211 are adopted without change.

16. *Second in command requirements.* The majority of the comments favored the second in command requirements proposed in § 91.213. In view of the change in the applicability of Subpart D, the rule as adopted herein only applies to large airplanes and turbojet-powered multiengine airplanes. In the preamble to the proposed rule we noted that NPRM 71-8A (36 F.R. 11865) would amend Part 61 to include recent experience and other qualifications for the second in command of an airplane type certificated for more than one pilot. We have determined that the second in command, when required by § 91.213, should meet the qualification standards proposed in that NPRM without further delay. Accordingly, § 61.47b as proposed in that Notice is redesignated as § 61.46, and adopted herein as an amendment to Part 61. To bring this requirement to the attention of the operators concerned, a new paragraph (b) has been added to § 91.213 requiring a person acting as second in command of any large airplane or turbojet-powered multiengine airplane, type certificated for more than one pilot, to meet the qualifications prescribed in § 61.46 as adopted herein.

The portions of NPRM 71-8A pertaining to the pilot in command proficiency requirements and those requirements pertaining to the second in command of airplanes not subject to Subpart D, require further study and evaluation and no final action will be taken on that portion until the study is completed.

To accommodate those airplanes having only one pilot station, such as former military airplanes certificated for special operations, § 91.213 as adopted permits an airplane having only one pilot station to be operated under an authorization from the Administrator.

Finally, to make it clear that the qualification requirements of the new § 61.46 do not apply to a second in command receiving required flight training, § 61.46 excepts those flights when passengers or cargo are not carried.

17. *Flight attendant requirements.* The majority of the comments received in response to the Notice made no recommendation for or against the flight attendant provisions in § 91.215. A proposed, that section required each flight attendant to be "familiar" with the functions to be performed and to be "capable" of using the emergency equipment installed on the airplane for the performance of those functions. To insure that each flight attendant meets those requirements § 91.215, as adopted herein, requires the flight attendant to demonstrate to the pilot in command that he or she meets the requirements for a flight attendant as prescribed in that section.

18. *Inspection Program.* As proposed, the inspection program requirements of § 91.217 applied to large airplanes and turbine-powered multiengine airplanes (turbojet and turboprop). In addition, they were also applicable to small turbine-powered multiengine airplanes operated by the holder of an ATCO certificate under Part 135. For the reasons previously stated, there is no change in the applicability of the inspection program requirements.

Most of the comments received generally concurred with the inspection provisions contained in the proposed § 91.217. Supported by individual comments from its members, the NBAA recommended that the rule should provide for the use of a commercially available inspection program based upon the use of a computer. Recognizing that large or turbine-powered multiengine airplanes are complex and for the most part systems oriented, these operators are to a great extent dependent upon the manufacturer's recommendations for a proper inspection program. To facilitate the implementation of these programs, some aircraft manufacturers have developed satisfactory continuous inspection programs utilizing computers that may also be utilized by the aircraft operator in nonaviation areas of his business. The FAA has no objection to such an inspection program and wishes to make it clearly understood that the inspection program can be used under the authority of § 91.217(b)(5) if it is approved by the local FAA District Office.

The NBAA and its members requested deletion of the provision in the proposed § 91.217(a) that requires replacement of life-limited parts specified in the "manufacturers' information" for the airplane concerned. The commentators were of the opinion that the manufacturers' information in regard to replacement of life-limited parts should be considered as a recommendation, but should not be mandatory. The life-limited parts referred to in the proposed rule were intended to be those required by the Administrator. Usually life limits are established during the type certification of a product and either listed in the FAA type certification data sheet, or product specification that is a part of the type certificate. Sometimes, for the convenience of the operator, the manufacturers' maintenance instructions also list life-limited parts that are made mandatory in the FAA type certification data sheet or product specification. To eliminate any misunderstanding in regard to the replacement of life-limited parts, the language of § 91.217(a) has been changed to require compliance with the replacement times for life-limited parts specified in the aircraft data sheets, or other document approved by the Administrator. The listing of such parts in the manufacturers' maintenance instructions would then be mandatory only if it is so specified in the aircraft data sheets or otherwise approved by the Administrator.

Many of the commentators were of the opinion that after the initial FAA approval of an operator's inspection program further FAA approval is unnecessary if a change is made in that program which is clearly an accepted inspection and maintenance practice. Although any change in the inspection program requires FAA approval to retain its status as an approved program, additional approval or minor changes are unnecessary if enough flexibility is established in the initial inspection program to accommodate those changes. By obtaining approval for such an inspection program an operator may modify his program within the parameters established in that program without the need of obtaining an additional FAA approval. On the other hand, by the initial approval of such a program the FAA is assured that the modified inspection program will remain sufficient to assure the airworthiness of the airplane.

Some commentators felt that an operator should not be limited to calendar time in the selection of his continuous inspection program. As proposed, § 91.217(e)(2) required a schedule for the performance of inspections expressed in terms of time in service, calendar time, number of systems operations, or any combination of these. We believe the section as proposed clearly allows the operator to choose an inspection schedule controlled by factors other than calendar time and, therefore, no change has been made to that section as adopted herein.

Notwithstanding the choice of inspection programs given to the operator under the proposed § 91.217, some commentators were of the opinion that the FAA should prescribe a uniform inspection program for all operators. Experience indicates that such a program would be impracticable under the broad spectrum of environment in which large or turbine-powered multiengine airplanes are operated today. The cycles of operation, stage lengths, number of landings per period, and even the climatic conditions may be different for each operator. To impose a single inspection program upon all operators, we believe, would place an undue burden upon many operators without enhancing the airworthiness of their airplanes.

The Air Transport Association states that it is unnecessary for an air carrier to notify the FAA of the type of inspection selected for an airplane each time it is used for a training or ferry flight. It is to be noted that air carrier airplanes are required to be inspected in accordance with a continuous airworthiness inspection program approved under Part 121. Therefore, it is not necessary for an air carrier to submit another notice of the inspection program under § 91.127 each time the airplane is used for training or ferry flights unless a different inspection program is used.

The National Transportation Safety Board concurred with the proposed inspection rule, but suggested that the rule should include a "return to service inspection" after a specified period of nonservice. The FAA agrees that when an airplane has been out of service for an extended period of time, an inspection should be performed before it is returned to service. The time and depth of the inspection, however, are dependent upon many variables such as climate, storage area, and type of airplane. An advisory circular will be issued as soon as possible containing information and recommendations for the accomplishment of such inspections under this program or other programs permitted under the regulations. We do not believe it is desirable at this time to make such inspections mandatory until further study is made.

To make it clear that the inspection requirements specified in § 91.217 apply to the emergency equipment including the survival equipment specified in § 91.189, the words "survival equipment" have been added to the items for which an inspection is required in accordance with the inspection program selected by the operator.

The applicability provisions of § 91.181(a) have been amended to also make it clear that the inspection requirements of §91.217 apply to small turbine-powered multiengine airplanes operated under Part 135 and to U.S. registered airplanes even though they are operated by a foreign air carrier under Part 129.

The preamble to NPRM 71-32 stated that for the convenience of the operators of airplanes subject to the rules in Subpart D, other provisions of Part 91 pertaining solely to airplanes subject to Subpart D would be incorporated by reference within the framework of that subpart. Upon further review of the provisions of Part 91, such an incorporation by reference is unnecessary.

In consideration of the foregoing, a new Subpart D to Part 91 and conforming amendments to Parts 43, 61, 91, and 135 of the Federal Aviation Regulations are hereby adopted, to read as set forth herein, effective October 23, 1972.

This rule is adopted under the authority of sections 313(a), 601, 602, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1422, 1423, 1424, and 1425), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-102

Aircraft Maintenance and Related Records

Adopted: August 1, 1972 **Effective: September 8, 1972**

(Published in 37 F.R. 15981, August 9, 1972)

The purpose of these amendments to Parts 43, 91, 121, and 127 of the Federal Aviation Regulations is to revise the maintenance and related recordkeeping requirements for aircraft and aircraft components.

These amendments are based on a Notice of Proposed Rule Making (Notice 70-43) published in the Federal Register on October 29, 1970 (35 F.R. 16740). A number of comments were received in response to the Notice and, except for those indicating agreement with the proposal or merely repeating issues discussed and disposed of in the Notice, the FAA's disposition of the comments is set forth hereinafter.

Several commentators were concerned that proposed § 91.173 would require more recordkeeping than is now required by the present rule thereby increasing the burden on owners and operators. However, the comments did not cite specific examples to support their concern in this respect. In this connection, both the present and the proposed rules require a complete record of maintenance and alteration of each aircraft and engine. The proposal is clarifying, however, in specifically requiring that records of maintenance and alteration be kept also for propellers, rotors, and appliances. Moreover, whereas the present rule requires total time in service records for aircraft and certain engines, the proposal requires such records only for the airframe and as necessary for showing the current status of life-limited parts, applicable airworthiness directives, and aircraft inspections. A primary objective of the amendments is to produce more useful records and while it is not possible to say in any given case that recordkeeping will not be increased, it is possible that in some instances, there may be a reduction.

In further connection with the recordkeeping under proposed § 91.173, one commentator was concerned that the proposal did not give assurance that work already performed would not be subject to record verification back to the time of construction of the basic airplane or component. However, the commentator's suggestion, that a date be established after which the data specified in the proposal would be required, would permit all records of work performed prior to that date to be destroyed. The purpose of the proposal was to ease the record retention requirement of the present regulations which make no provision for the disposal of superseded or obsolete records that are now part of the "permanent" records and accordingly required to be retained for the life of the article. Proposed § 91.173 effectively makes provision for retaining specific records only for the period of time they are useful, after which they may be discarded. This applies to existing as well as future records. To the extent that the commentator is concerned that the data required to be retained under the present regulations may be set forth in a number of documents and that those documents may also contain data that can be disposed of under the proposal, it should be noted that the owner or operator has the option of retaining those documents or establishing a new record containing only the required data.

Pointing out that proposed § 91.173 does not make specific provision for logging repairs or alterations by reference to FAA Form ACA-337, one commentator asked if that procedure were being deleted. The proposal makes the language of § 91.173(a)(1)(i) consistent with that of § 43.9(a)(1). Accordingly, where maintenance or alteration is recorded by reference to Form ACA-337 in compliance with § 43.9(a)(1), the owner or operator receives from the person who maintains or alters the aircraft an entry to that effect in the aircraft maintenance record. That entry meets the requirement of § 91.173(a)(1)(i) since it references data acceptable to the Administrator and any further description of the work would be superfluous. For this reason, it is unnecessary to include a provision that repairs or alterations may be logged by making specific reference to Form ACA-337 even though, as indicated above, such a recording procedure may continue to be utilized in an appropriate situation.

Three commentators requested clarification of the intent or meaning of the phrase "current status of life-limited parts" used in proposed §§ 91.173(a)(2)(ii) and 91.174(b)(4). Two other commentators questioned whether "life-limited" referred to manufacturers' recommendations or to limitations included in the aircraft type certificates issued by the FAA. The intent of the proposal is to assure that records are kept from which the "current status" of life-limited parts can be determined. The term "life-limited parts" refers to parts or components for which retirement times, service life limitations, parts retirement limitations, retirement life limitations, or life limitations exist. By whatever term they are called, such limitations on life-limited parts are those that are "required" by the Administrator under the provisions of the Federal Aviation Regulations. "Required" life-limits may be established during the type certification of a product and set forth in the type certificate data sheet (or product specification that is a part of the type certificate). They may also be established in an airworthiness directive, in an operator's operations specifications, in an FAA-approved maintenance program, including an inspection program, or in the limitations section of an Airplane Flight Manual or other manual required by an operating rule. Similarly, the phrase "required to be overhauled on a specified time basis", as used in proposed §§ 91.173(a)(2)(iii) and 91.174(b)(5), means "required" by the Administrator under the provisions of the Federal Aviation Regulations and refers to those items which must be overhauled on a specified or "hard" time inservice basis established by one of the same procedures mentioned above in connection with life-limited parts.

Indicating its belief that proposed § 91.173 does not go far enough in setting forth recording requirements, one commentator suggested that the amendment should also require a record of maintenance that had been scheduled but not performed as, for example, work written up by technicians and inspectors or included in a service bulletin but not accomplished prior to return to service because it had been deferred or deemed to be a "noncompliance" item. The situation presented by this commentator relates to air carrier operations and is, therefore, not properly cognizable under § 91.173. However, to the extent that it applies to maintenance in general, the FAA does not agree with this concept of recordkeeping. The FAA believes that a proper maintenance record is a record of the work actually done and of the identification of the persons approving the work. Moreover, contrary to a further recommendation, the FAA does not believe there is any necessity that work performed be recorded both by description and by reference to data acceptable to the Administrator since a proper description of the work may be given without reference to bulletins, manuals, or engineering data.

With reference to the disposition of records, one commentator suggested that at the time of the annual inspection, the required data on time-in-service alterations, and airworthiness directives be submitted to the FAA for retention. Another commentator in a similar vein wanted records of all work, including nondestructive test records, kept for one year, whether or not the work was repeated or superseded, and then microfilmed and submitted to the FAA. The FAA disagrees with these comments. Obsolete and redundant records do not aid in determining the current condition of an aircraft, and the FAA does not have facilities to be the repository of such records. Current records, as provided in the amendment to § 91.173, are to be retained by the owner or operator.

One commentator recommended that maintenance records should be required for any time period that an aircraft may have been a public aircraft. However, under the Federal Aviation Act of 1958 public aircraft are not subject to the certification and maintenance requirements of the Federal Aviation Regulations. Therefore, a prospective purchaser of a public aircraft must assess the records of such an aircraft against the recordkeeping requirements of § 91.173 to assure their adequacy for civil aircraft purposes. Finally, it should be noted in connection with proposed § 91.173, that clarification of the term "approved", as requested by another commentator, is unnecessary in view of the definition of that term in Part 1 of the Federal Aviation Regulations. However, § 91.173(a)(1) has been revised to make it clear that it includes records of other required inspections as well as of other approved inspections. In addition, for further clarification and consistency, § 91.173(a)(2) has been revised to list, as records required to be kept, all the information listed for transfer in § 91.174(b) of the proposal.

With regard to proposed § 91.174(b)(1), one commentator reported seeing logbook entries that recorded compliance with airworthiness directives without including a description of compliance, and recommended that a "grandfather" provision be provided or the regulation be made more specific as to recording the method of compliance. Contrary to the commentator's understanding, proposed § 91.174(b)(1) merely continues the present requirement that the method of compliance must be recorded. It should be noted that airworthiness directives generally refer to a manufacturer's service bulletin for one acceptable method of compliance, and if the service bulletin is followed, the record of the method of compliance may be made by referencing the service bulletin.

The present regulations require that the entire maintenance record be given to the transferee upon disposition of an aircraft. Notice 70-43, on the other hand, proposed that the mandatory transfer of maintenance records include only summary information in the form of various status and time lists. One commentator requested clarification of the proposed record transfer requirement since it appeared that the transfer of the other maintenance records should be the subject of agreement between seller and purchaser. In this connection, the proposal continued the requirement that all maintenance records required to be kept be made available for inspection by the FAA and the National Transportation Safety Board (NTSB). Therefore, to insure the availability of necessary records, notwithstanding an intervening sale, the transfer requirements of new §§ 91.174, 121.380a and 127.142, make provision for all maintenance records required to be kept. Following the suggestion of the commentator, maintenance records, other than the status and time summaries, may either be transferred to the purchaser or, upon agreement of seller and purchaser, remain in the physical custody of the seller. In the latter event, however, the purchaser as the new owner, or operator, is not relieved of his responsibility to make the records available for inspection by the FAA and the NTSB.

One commentator objected to continuation of the requirement stated in proposed § 121.380(b) for retention of the record of the last complete overhaul of certain items. The commentator contends that for many such items used by air carriers, complete overhaul has been effectively superseded by the application of various maintenance control programs such as condition-monitoring and fault-isolation techniques. The FAA does not agree, however, that all provisions for overhaul record retention should be deleted. The proposal takes into account the realistic needs of the air carriers and investigative agencies in relation to the present state-of-the-art of data collection, recording, and storage. Notwithstanding the availability of various maintenance control program techniques, overhaul remains a part of maintenance even though the number of items overhauled may vary from operator to operator. Where a maintenance program for an item of aircraft equipment does not require overhaul, of course, there will be no overhaul records requiring retention under this provision. The FAA does agree that there should be a provision for the disposal of overhaul records when the work is superseded by other work. The intent of the Notice was that overhaul records not be subject to the one year rule but that they be retained until the work is superseded by work of equivalent scope and detail, and the proposal has been changed accordingly.

With reference to a query regarding the airworthiness release form, it should be noted that the form itself is not a maintenance record covered by the retention requirements of § 121.380, notwithstanding certain requirements for records relative to it as stated in that section. Retention of the airworthiness release form continues to be governed by § 121.709.

Another comment questioned the different retention times for certain records by air carriers and by repair stations and manufacturers doing work for the carriers and further alleged that the proposal requires a duplication of certain records. However, the FAA does not believe there is any inconsistency. The recording and retention requirements for the carriers on the one hand and repair stations and manufacturers on the other are necessarily governed by the needs of each and are not duplicative. A person performing maintenance for an air carrier must perform and record that work in accordance with the carrier's manual but the manual need not be identical with recording requirements for repair stations or manufacturers.

Anticipating a situation in which records required to be transferred with an aircraft might not be available, one commentator recommended the retention of the provisions of present § 121.699(c) under which an aircraft component, aircraft engine, propeller, or appliance could be placed in service without complete records if certain conditions are met. However, since the comment was specifically directed at the airframe, the provisions of the section that is being deleted would be inapplicable in any event under the conditions stated in present § 121.699(c). Moreover, as the commentator recognized, it would be rare not to have the aircraft history and total time records available, and such cases should be dealt with on an individual basis.

Proposed § 91.173 deletes the present reference to "permanent" maintenance records. Similarly, proposed §§ 121.380 and 127.141 delete the provisions contained in the present sections which, in part, require a record of "all" maintenance. For internal consistency, the related provisions of Part 43—Maintenance, Preventive Maintenance, Rebuilding, and Alteration, should also be changed. Accordingly, this amendment includes editorial changes to §§ 43.9 and 43.11 which delete the word "permanent" in connection with maintenance record entries, and the word "all" with reference to the recording of air carrier or commercial operator maintenance, rebuilding, and alteration.

Finally, the proposal has been editorially revised and minor clarifying changes have been made in the wording of the regulations proposed in Notice 70-43. However, these changes are nonsubstantive in nature. In this connection, § 91.161(b) is being amended to exempt aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in Part 121, or 127, or 135 from the requirements of § 91.174 and the same requirements are being made applicable to those certificate holders in new §§ 121.380a and 127.142. This revision is consistent with the current exemption for these aircraft from the requirements of § 91.173.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

In consideration of the foregoing, Parts 43, 91, 121, and 127 of the Federal Aviation Regulations are amended as follows, effective September 8, 1972.

These amendments are made under the authority of sections 313(a), 601, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1425), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–103

Airpane and Rotorcraft Manuals, Markings, and Placards

Adopted: September 19, 1972 **Effective: October 23, 1972**

(Published in 37 F.R. 20022, September 23, 1972)

The purpose of these amendments to Parts 23, 27, 91, 121, and 127 of the Federal Aviation Regulations is to revise and clarify the requirements for airplane and rotorcraft manuals, markings, and placards.

These amendments are based on a Notice of Proposed Rule Making (Notice 70–47) issued on November 18, 1970, and published in the Federal Register on November 25, 1970 (35 F.R. 18054). Three comments were received in response to Notice 70–47, one of which favored the proposed amendments. The two comments recommending changes to the proposed amendments are discussed below. Based upon these comments and upon further consideration by the FAA, a number of substantive and editorial changes have been made to the proposed rule. Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant matter presented. Except as modified by the following discussion, the reasons for these amendments are those in the Notice.

One comment suggested that all aircraft, including those weighing less than 6,000 pounds, should have approved Airplane Flight Manuals containing all of the required information and that placards should be kept on the aircraft for emergency reference only. Commentator stated that a flight manual can be temporarily removed from the aircraft for comfortable reference in a ramp office when outside temperatures are extremely high or low, and that fewer C.G. out of limit or overweight temperature accidents will occur with small aircraft if the total information is available for reference in a comfortable environment. The airworthiness requirements were changed in 1953 to eliminate the requirement for Airplane Flight Manuals for airplanes under 6,000 pounds, and the FAA agrees that this exception should be reconsidered in view of the complexity of small airplanes being type certificated today and the resulting increase in information that must be made available to the pilot. However, that consideration is beyond the scope of Notice 70–47. The Notice proposed amendments to the present regulations which are primarily clarifying in nature and intended to make the present airworthiness standards and operating rules internally consistent. Nevertheless, the comment is appreciated and will be considered for future rule making action. However, in response to the comment and to insure that the information is readily available to the pilot, proposed § 23.1559 has been revised to require the form and location of the "approved manual material" to be specified in the operating limitations placard.

Another comment, while agreeing with the proposed changes to §§ 23.31 and 23.1541, noted that the proposed change to § 23.1559 would eliminate the "operating limitations placard" for airplanes certificated in a single category. This was not the intent of the proposal and proposed § 23.1559(a) has been changed to include airplanes type certificated in only one category. In addition, proposed § 23.1559(a) has been editorially revised to indicate the mandatory status of the operating limitations contained in the Airplane Flight Manual, approved manual material, markings, and placards.

With respect to the proposed amendment to § 23.1581, a commentator opposed the insertion of the word "approved" before the word manual and the requirement that "all approved manual material must be approved, clearly identified and not easily erased, disfigured, or misplaced." The commentator stated that to require FAA approval for material which previously did not require approval would materially complicate a system that has been successfully used by manufacturers for 15 years and that there is no safety justification or administrative need for the requirement. The FAA does not agree. The applicable information in §§ 23.1583 through 23.1589 that proposed § 23.1581 would require to be furnished in an Airplane Flight Manual or in any combination of approved manual material, markings, and placards is necessary for the safe operation of an airplane and the form and manner in which that information is presented to the pilot as well as the information itself should be approved by the FAA. However, proposed §§ 23.1581(b) and 27.1581(b) have been revised to further specify the form and content of the "approved manual material."

Based on further consideration of the requirement in proposed § 27.1581(a)(2) that the information contained in §§ 27.1583 through 27.1589 be furnished not only in a Rotorcraft Flight Manual or approved manual material but also in markings and placards, the proposal has been revised to permit the information to be furnished either in a Rotorcraft Flight Manual or in any combination of approved manual material, markings, and placards. The FAA has determined that it is not necessary for the information contained in §§ 27.1583 through 27.1589 to be furnished in one form and then repeated in the form of markings and placards. As revised the requirement is consistent with the amendment to § 23.1581 and is the same as present § 27.1581(a)(2) except that the option of furnishing the information in approved manual material is provided for in the event that the operating rules of Chapter I do not require a Rotorcraft Flight Manual.

Finally, consistent with the amendments to §§ 23.1559 and 27.1501, § 27.1559 is amended to reflect the option for a helicopter, of using a Rotorcraft Flight Manual or approved manual material to furnish the required operating limitations and to require that the form and location of approved manual material be set forth in the operating limitations placard.

In consideration of the foregoing, Parts 23, 27, 91, 121, and 127 of the Federal Aviation Regulations are amended, effective October 23, 1972.

These amendments are adopted under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, and 1423), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-104

Aircraft Lease Agreements: Requirement for "Truth in Leasing" Clause

Adopted: September 27, 1972 **Effective: January 3, 1973**

(Published in 37 F.R. 20934, October 5, 1972)

This amendment to Part 91 of the Federal Aviation Regulations prescribes requirements for including a "truth in leasing" clause in certain leases and contracts of conditional sales involving U.S. registered large civil aircraft, and for filing a copy of the lease or contract with the FAA and carrying a copy in the aircraft.

This amendment is based on a Notice of Proposed Rule Making (Notice 71-35) published in the Federal Register on October 29, 1971 (36 F.R. 20768).

The wording of the proposal in § 91.54(a) has been revised to clarify its applicability and also to make it clear that a lease or contract of conditional sale subject to this regulation must be in writing, as well as the required "truth in leasing" clause.

As proposed in Notice 71-35 the requirement for including a "truth in leasing" clause would have applied to large or turbine-powered multiengine aircraft. However, after further study and consideration of the comments received, the FAA has concluded that safety will not be compromised if the "truth in leasing" requirement is only made applicable to large aircraft. Accordingly, as adopted herein, the applicability of § 91.54(a) is limited to U.S. registered large civil aircraft. Nevertheless, the FAA may at a later date, if circumstances warrant, propose additional rule making to require "truth in leasing" for other aircraft.

The exemption provision adopted in § 91.54(b)(1) is essentially the same as proposed, except for certain kinds of leases and contracts which have been added to the exemption provision upon further consideration of the proposal in the light of comments received. Specifically, the additions are leases and conditional sales contracts, when the party furnishing the airplane thereunder (lessor or conditional seller) is a foreign air carrier; a certificate holder under Part 121, 123, 127, or 141; or a certificate holder under Part 135 having appropriate authority to engage in air taxi operations with large aircraft. Adoption of the exemption provision in § 91.54(b)(1) is considered appropriate, since the FAA is confident that those operators specified therein are fully cognizant of their safety responsibilities as aircraft owners and operators under the Federal Aviation Regulations.

The FAA also recognizes that the problem to which the proposal was directed has not involved those arrangements normally entered into by aircraft manufacturers and dealers for the sale of new aircraft. Accordingly, a provision has been added to § 91.54(b) to exempt contracts of conditional sale when the aircraft involved have not been registered anywhere prior to the execution of the contract, except as new aircraft under a dealer's registration certificate.

Some comments were received which objected to carrying a copy of the lease or contract aboard the aircraft on the grounds that no purpose would be served by such a requirement. The FAA does not agree. A copy of the lease or contract should be aboard the aircraft to permit FAA field inspectors to determine who the parties consider has operational control of the aircraft, the regulations under which the aircraft has previously been maintained, and the regulations under which it will be maintained during the term of the lease or contract.

In addition, the FAA has concluded that if an aircraft is leased to a person who is not a citizen of the United States, the registered owner, rather than the lessee, should be responsible for mailing a copy of the lease to the FAA. Accordingly, such a requirement has been adopted in paragraph (c)(1) of § 91.54.

As stated in paragraph (d) of § 91.54, a lease or contract sent to the FAA in accordance with paragraph (c) is considered to be commercial or financial information obtained from a person, and privileged or confidential under 5 U.S.C. 552(b)(4). It will not, therefore, be made available by the FAA for public inspection of copying, unless recorded with the FAA under Part 49 of this chapter.

For purposes of clarification, a definition of the term lease, as used in § 91.54, has been added in paragraph (e). As defined, it means any agreement by a person to furnish an aircraft to another person for compensation or hire, whether with or without flight crewmembers, that is not a contract of conditional sale under § 101 of the Federal Aviation Act of 1958.

A conditional sale, as defined under the Act and pertinent to this amendment, means (a) any contract for the sale of an aircraft under which possession is delivered to the buyer and the property is to vest in the buyer at a subsequent time, upon payment of part or all of the price, or upon the performance of any other condition or the happening of any contingency; or (b) any contract for the bailment or leasing of an aircraft by which the bailee or lessee contracts to pay as compensation a sum substantially equivalent to the value thereof, and by which it is agreed that the bailee or lessee is bound to become, or has the option of becoming, the owner thereof upon full compliance with the terms of the contract.

Interested persons have been given an opportunity to participate in the making of this amendment and due consideration has been given to all matter presented.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended by adding a new § 91.54, effective January 3, 1973.

This amendment is issued under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-105

Flights Over Cuba; Rescission of Certain Requirements

Adopted: October 11, 1972 **Effective: October 18, 1972**

(Published in 37 F.R. 21990, October 18, 1972)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to rescind the application of § 91.101 to flights overflying Cuba.

Federal Aviation Regulation § 91.101 was originally issued as Special Civil Air Regulations SR-437 on October 30, 1959. It was issued during a period of international tension to provide for the proper coordination and clearance of all civil aircraft (with exceptions) departing the United States for flights "to or over" Cuba.

Many civil pilots, who overfly Cuba, believe that the applicability of § 91.101 to overflights is now no longer necessary and have requested its revocation with respect to overflights. The Department of State has advised that even though it still believes that the regulation should continue to be applied to flights "to" Cuba, there is no strong objection to rescinding the regulation with respect to flights, to other countries, passing "over" Cuba. The Department of Defense has advised that it concurs in this because the DVFR or IFR flight plan filed in accordance with FAR Part 99 satisfies air defense requirements. The Immigration and Naturalization Service and the U.S. Customs Service have also advised that they have no objection.

Section 91.101 now requires that no person may operate a civil aircraft (except the operation of aircraft by a scheduled air carrier over routes authorized in operations specifications issued by the Administrator) from the United States to, or over, Cuba unless—

(1) Departure is from an international airport of entry;

(2) The pilot has filed a DVFR or IFR flight plan; and

(3) The pilot has filed a written statement containing specified information with the Office of Immigration and Naturalization Service.

Rescission of the application of § 91.101 to flights overflying Cuba will grant relief and eliminate an unnecessary inconvenience to pilots by permitting departure from any airport and by eliminating the need for filing the written statement with the Immigration and Naturalization Service.

Rescission of the application of § 91.101 to flights "over" Cuba does not in any way affect other requirements relating to flights over Cuba. Other procedures and regulations are still in effect which provide for aircraft safety, and also provide assurance that the Cuban Government will be informed before any civil aircraft of the United States overflies Cuban territory. These other procedures and regulations include the following:

1. The "International Flight Information Manual" procedures for flights entering and overflying Cuban territory.

2. Federal Aviation Regulation § 99.11, which requires that an aircraft operating in or penetrating a coastal ADIZ must file a flight plan with an appropriate aeronautical facility.

3. Paragraph 3.3.1.1.2, Chapter 3, of the "International Standards, Rules of the Air," (Annex 2 to ICAO), which provides for a flight plan to be filed for operations across international borders.

4. Federal Aviation Administration Order 7110.10A, "Flight Services," paragraphs 790 and 1180, directing controllers to use ICAO procedures and documents for handling flight plans and other messages.

5. ICAO Document No. 4444-RAC/501/10, "Rules of the Air and Air Traffic Services," Part VII, Coordination, providing for flight plans submitted under Annex 2 to be forwarded to the adjacent Flight Information Region.

6. Section 91.1(b)(1) of the Federal Aviation Regulations, which requires compliance with Annex 2 to ICAO over the high seas.

The entry procedures for Cuba stated in the "International Flight Information Manual" provide for a notification, by the overflying operator, by means of a cablegram addressed to AEROCIVIL, Habana, not less than 48 hours in advance of the anticipated time of departure. These procedures provide for specific information (such as name, nationality, and official address of the operator, name of pilot in command, air corridor to be used under the flight plan, and date of the overflight) to be included in the cablegram. Under these procedures, this information is sent to AEROCIVIL, and the reply from AEROCIVIL ensures that the notification has been received, and communicates its decision in the matter. Any aircraft which is authorized to make an overflight transmits its flight plan to the Habana air traffic control center not less than one hour before it enters the Flight Information Region assigned to the Republic of Cuba. Finally, these procedures provide for overflying aircraft to furnish the position reports prescribed by the aeronautical authority for the area of its jurisdiction, and to make use of any services and facilities for aid to navigation that have been established or that are required under regional agreements of the ICAO or for reasons of safety.

It should be clearly noted that rescinding the applicability of § 91.101 to aircraft overflying Cuba does not eliminate the requirement of filing a flight plan for such flights. As stated above, § 99.11(a) of the Federal Aviation Regulations provides that "no person may operate an aircraft in or penetrating a coastal or domestic ADIZ unless he has filed a flight plan with an appropriate aeronautical facility." Any flight from the United States to Cuba that penetrates an ADIZ involves the required filing of a flight plan. Also, as stated above, paragraph 3.3.1.1.2., Chapter 3, of the "International Standards, Rules of the Air" (Annex 2 to ICAO), provides for a flight plan to be filed when operating across international borders. The United States, being a member of ICAO, complies with this provision.

The mere filing of a flight plan does not ensure that the Cuban Government is informed that a United States civil aircraft will overfly Cuban territory. However, FAA Order 7110.10A "Flight Services," paragraphs 790 and 1180, directs a controller to use ICAO procedures for handling flight plans and flight plan information. Therefore, pursuant to ICAO Document No. 4444-RAC/501/10 "Rules of the Air and Air Traffic Services," Part VII, "Coordination" and Part VII, "Air Traffic Messages," controllers forward flight plans to adjacent Flight Information Regions. This procedure does assure that the Cuban Government will receive necessary prior information relating to overflights.

The safe operation of United States civil aircraft overflying Cuba is further achieved through § 91.1(b) of the Federal Aviation Regulations. This regulation requires, with certain exceptions, that each person operating a civil aircraft of United States registry outside of the United States, when over high seas, shall comply with Annex 2 (Rules of the Air) to the Convention on International Civil Aviation, and, when within a foreign country, comply with the regulations relating to the flight and maneuver of aircraft there in force.

Based upon the above discussion, and for the reasons stated, the FAA believes that the applicability of § 91.101 to flights overflying Cuba should be rescinded.

Since this amendment is minor in nature, and relieves the public of a burden that was imposed in response to an international situation that no longer requires that burden, it is found that notice and public procedure hereon would serve no useful purpose and are not necessary.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective October 18, 1972, as hereinafter set forth.

This amendment is made under the authority of sections 307(a) and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348(a), and 1354(a)), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–106

Report on Identification and Activity of Aircraft

Adopted: December 13, 1972 **Effective: December 22, 1972**

(Published in 37 F.R. 28276, December 22, 1972)

The purpose of this amendment is to refer, in Part 91 of the Federal Aviation Regulations, to the requirement for the periodic submission of Part 1 of AC Form 8050–73 (Aircraft Registration Eligibility, Identification, and Activity Report) to the FAA Aircraft Registry. Section 91.53 presently sets forth the material requested in Part 2 of that form, but does not mention Part 1, whose submission by the holder of each Certificate of Aircraft Registration is required by § 47.44.

It appears, in connection with the revocations each year of Certificates of Aircraft Registration, that a substantial number of certificate holders are not aware that the periodic submission of Part 1 of the form is mandatory. The revocations impose an added burden and expense on the holder as well as additional expense and considerable workload on the agency. Most aircraft owners, once having registered their aircraft, apparently are more familiar, from constant contact, with Part 91 than with Part 47. It is considered that a reference to Part 1 of the form should appear in § 91.53, thereby increasing the likelihood that certificate holders will become aware of the mandatory nature of § 47.44 and its periodic requirement.

Since this amendment does not involve any substantive change and does not impose an additional burden on the affected certificate holders, I find that public notice and procedure thereon are not necessary and that it may become effective in less than 30 days.

In consideration of the foregoing, § 91.53(a) of the Federal Aviation Regulations is hereby amended, effective December 22, 1972.

(Sections 103, 307, 311, 312, 313(a), 501, 601(a)(6), 609, and 901 of the Federal Aviation Act of 1958; 49 U.S.C. 1303, 1348, 1352, 1353, 1354(a), 1401, 1421, 1429, 1471. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c)).

Amendment 91–107

Airborne ATC Transponder Equipment

Adopted: December 18, 1972 **Effective: January 26,1973**

(Published in 37 F.R. 28495, December 27, 1972)

The purpose of these amendments to Parts 37, 43, 91, 121, 127, and 135 of the Federal Aviation Regulations is to provide new standards for Airborne ATC Transponder Equipment and to require that transponders in aircraft meet TSO standards.

These amendments are based on a Notice of Proposed Rule Making (Notice 71-10) issued on March 22, 1971, and published in the Federal Register on March 30, 1971 (36 F.R. 5853). Numerous comments were received in response to Notice 71-10 and the relevant comments are discussed below. Based upon these comments and upon further consideration by the FAA, a number of changes have been made to the proposed rule.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all relevant matter presented. Except as modified by the following discussion, the reasons for these amendments are those set forth in the Notice.

A number of comments objected to the use of the TSO system for the approval of Class 2A and 2B ATC transponders. The commentators assert that the TSO system is primarily intended to provide approvals for equipment for air carrier operations, that it is too time-consuming and costly for equipment intended to be used on general aviation aircraft, and that alternative approval methods should be allowed. It should be noted that under § 21.305 of the Federal Aviation Regulations an appliance may be approved under the TSO system, or as part of the aircraft design under the aircraft type certification procedures, or in any other manner approved by the Administrator. The same methods of approval are permitted under the proposal and this amendment. The FAA does not believe that the methods suggested by the commentators would provide the production quality control and FAA surveillance that is necessary to assure that the transponders meet the proposed standards which are required for FAA approval.

In response to a number of comments that the proposed TSO data requirements in subparagraph (d)(1)(iv) of § 37.180 can be interpreted as requiring a full compliance test program on each production unit, the subparagraph has been revised to make it clear that the equipment data sheet must specify the actual performance of equipment of a type rather than of each individual unit. In addition, subparagraph (d)(2) has been revised to include, by reference, the manufacturer's operating instructions and equipment limitations in the information that must be furnished with each article.

A number of comments objected to the implementation dates specified in the notice. All but one of those commentators maintained that the proposed effective dates would not provide a reasonable service life for the equipment already in service or in production, and they recommended a postponement in the implementation dates for periods varying from a few years to an indefinite period of time. The other commentator recommended that the implementation date for newly installed equipment in air carrier aircraft be the same as the implementation date for the rules that will result from Notice of Proposed Rule Making No. 69-9. Based on this comment and upon further consideration the implementation dates have been changed to January 1, 1974, for new equipment installations and July 1, 1975, for all equipment installations in order to make them consistent with the dates proposed in Notice 69-9, as supplemented by Notice 72-12.

In response to the request in Notice 71-10 for comments as to the need for the proposed low altitude transponder category, numerous comments were received recommending its retention. Several of the commentators also suggested that the utilization altitude be tied to an operational air traffic control altitude presently in use, such as the 18,000 foot altitude used to define positive control areas. In support of the retention of a low altitude transponder category, the commentators estimated variously that high altitude transponders are from 5% to 82% more costly than low altitude transponders, and that it would be unreasonable to require a high altitude transponder on aircraft which would only operate above the altitude under extreme weather or emergency conditions. Based on these comments, the amendment retains the provisions for a low altitude transponder category. The FAA does not agree with the suggestion that the altitude limit for use of low altitude transponders be tied to defined positive control areas because of equipment considerations.

One commentator recommended the elimination of the high altitude transponder category on the ground that there is no technical justification for requiring a higher power output for transponders in aircraft operating at altitudes above 15,000 feet. The FAA does not agree. A power output, greater than that required in the low altitude transponder, provides assurance that aircraft that operate at high altitude, and at great horizontal distance from the receiving station will show up on the air traffic controller's scope.

A comment was received suggesting that air traffic controllers should be instructed as to the difference in capabilities of low and high altitude transponders, and that pilots should be required to inform air traffic controllers as to the type of transponder installed on his aircraft. However, since the proposed operating rules require the use of a transponder appropriate to the type of operations intended, the FAA does not believe that there is a need to require pilots to inform air traffic controllers as suggested.

The FAA does not agree with a suggestion made by several commentators that the environmental test requirements be revised to include Option C of Part One in Section III of RTCA Document DO-144. The RTCA option suggests that the manufacturer, as a minimum, should state the range of temperature and altitude over which his equipment is capable of operating. Proposed § 37.180(a)(2) (renumbered as subparagraph (a)(3) in this amendment) specifies these conditions and, in addition, humidity, shock, vibration, and power input voltage. Due to the wide range of environments in which general aviation aircraft operate, the minimum environmental conditions specified in Option C of Part One of Section III of RTCA Document DO-144 are insufficient to insure the required level of reliability.

One commentator requested that operators certificated under Part 135 be permitted to use any class of complying ATC transponders since certain operating limitations placed on Part 135 operators are not applicable to air carriers. The FAA does not agree. The limitations mentioned by the commentator are not related to the capability of the type of transponder used, and the reasons which justify the proposed requirement for air carriers are equally applicable to Part 135 operators.

In response to a suggestion that provisions be made for the continued operation of transponders approved under TSO-C74 and TSO-C74a, the proposed operating rules have been revised to permit the approval of operations with such transponders after July 1, 1975, if the applicable performance standards of TSO-C74c and the environmental standards of the TSO under which the equipment was manufactured are shown to be met.

One comment stated that the design tolerance specified in subparagraph II A.5.a. of Part Two in RTCA Document DO-144 are much stricter than would be required in actual usage. The commentator recommended that transponders should not reply to more than 10 percent of the interrogations when the interval between pulses P_1 and P_3 differs from that defined in Appendix A for the mode selected in the transponder by more than ±15 percent of the nominal specification. The FAA does not agree that the tolerances are much stricter than that required in actual usage. Furthermore, the requirement specified in the proposed TSO is consistent with that required by ICAO for international operations.

One comment recommended that subparagraph II A.5.b. of Part Two in RTCA Document DO-144 not be included in the TSO on the ground that its requirements are duplicated in subparagraph II A.9.b. of that document. To the contrary, however, subparagraph II A.5.b. applies only to the reply capability of the transponder in response to single pulses, while subparagraph II A.9.b. applies to both reply and suppression action to pulses wider than 1.5 microseconds.

The FAA also disagrees with a recommendation that the dead time specified in paragraph II A.6. of Part Two of RTCA Document DO-144 be increased from 125 microseconds to 500 microseconds, thereby reducing transponder live time. The rapid increase in the use of Mode C ground equipment by civil and military facilities requires a high degree of system reliability to assure that adequate replies are obtained on each interrogation during critical periods. In areas where multiple interrogators operate, high transponder live time is essential for altitude data.

One comment suggested that the test of suppression specified in paragraph II A.7. of Part Two in RTCA Document DO–144 be performed with the received amplitude P_2 greater than the received amplitude of P_1 by 2db, or more, and that the suppression re-initiation period be increased from 2 to 50 microseconds. The FAA does not agree. Due to the effects of lobing caused by reflection from the surface of the earth, the signal levels of P_1 and P_2, which are radiated from different ground antennas at slightly different heights above ground, frequently arrive at the aircraft at equal levels. For suppression of side lobe signals, it is essential that transponders provide suppression action at equal signal levels. In addition, to avoid unacceptable interference with the operations of military facilities, the retention of the 2 microsecond suppression re-initiation period is essential.

In response to a comment that subparagraph II A.8.c. of Part Two in RTCA Document DO–144 could be misinterpreted, a new § 37.180(a)(2)(i), entitled "Exceptions" has been added to the proposed TSO which replaces that subparagraph with a requirement over which the reply characteristics apply.

In reply to another comment recommending the elimination of the requirement of paragraph II A.9. of Part Two in RTCA Document DO–144, an exception has been added as new § 37.180(a)(2)(ii) to relieve the manufacturer from complying with subparagraph II A.9.a. Field testing has shown that transponder squitter due to noise is not a significant problem. The requirement for narrow pulse rejection is not needed if the random triggering and suppression rate requirements of paragraph II A.11. of Part Two in RTCA Document DO–144 are met. On the other hand, service experience and testing indicate that the wide pulse type interference associated with the requirements of subparagraph II A.9.b. does present a problem so that compliance is required.

A comment recommended elimination of the echo suppression and recovery requirement contained in paragraph II A.10. of Part Two in RTCA Document DO–144 on the basis that the problem is caused by inadequate ground equipment. The FAA does not agree. Echoes (multipath signals) caused by signal reflections from terrain and buildings, cause practical problems in transponder operation. Extensive experience in the operation of the Air Traffic Control Radar Beacon System (ATCRBS) has developed a standard desensitization and recovery curve to minimize the multipath effects on the operation of transponders. Moreover, the FAA locates its own traffic control radar receiving stations so as to minimize the number of echoes. However, since it is practically impossible to eliminate all echoes through the geographical location of the ground station, the proposed requirement providing for capability of the airborne equipment to reject that type of signal has been retained.

One commentator objected to the requirement contained in paragraph II A.13. of Part Two in RTCA Document DO–144 on the ground that, in the FAA's planned airborne environment, an interrogation rate of 1,000 per second will seldom be exceeded. It was contended that if the purpose of the requirement is to protect the airborne transmitter from damage due to excessive replies, more straightforward means are available than are contained in paragraph II A.13. The FAA does not agree. The Air Traffic Control Radar Beacon System operates on a common frequency with the military IFF system, and in many areas of the country, the operation of civil and military facilities results in peak interrogation rates exceeding 1,000 per second. Reply rates must be limited in order to provide adequate service to the closer (stronger) interrogators since excessively high rates would result in unacceptable interference to all users.

One commentator, referring to subparagraph II A.16.b.(1) of Part Two in RTCA Document DO–144, asked whether there was any requirement that the transponder's mode switch have any function other than Off, Standby, On, and Altitude Off (i.e., stop transmitting altitude information pulses while still transmitting the Mode C framing pulses and normal Mode A replies). Subparagraph II A.16.b.(1) requires the transponder to respond to Mode C interrogations independently of other modes or codes manually selected. It does not require other modes or codes to be available or selectable.

The FAA does not agree with a comment objecting to the receiver bandwidth limitation contained in paragraph II A.18. of Part Two in RTCA Document DO–144. The commentator contended that those requirements are for the purpose of limiting squitter and suppressions, which is adequately covered by paragraph II A.11. of RTCA Document DO–144. While that assertion may be true for interference originating within the aircraft, paragraph II A.11. does not provide protection from external sources of interference. The only practical means of protecting transponders from interference originating external to the aircraft is by a reasonable limitation on the receiver bandwidth.

One commentator stated that if the TSO is being amended to permit the operation of the Genave PWI system, proposed paragraph 2.7.c.(2) of the "Federal Aviation Standard, Airborne ATC Transponder Equipment" should be changed because the present wording rules out that system. The FAA does not agree. The proposed change was not limited to the Genave PWI system and was worded broadly enough to include all types of external attachments. The maximum allowable dead time of 4.5% should not be reached by the Genave PWI since it does not generate suppression pulses during the alarm mode. ATCRBS side lobe interrogations are considered valid interrogation signals and are not included as part of the 4.5%.

A comment also questioned whether paragraph 2.7.c.(2) of the "Federal Aviation Standard, Airborne ATC Transponder Equipment" applies to internal suppression or if that paragraph requires the use of an external suppression jack on a class 2A transponder. The dead time created by means other than normal interrogations, as stated in paragraph 2.7.c.(2), refers only to external devices such as TACAN, DME, or PWI. The paragraph does not require a manufacturer to provide an external suppression jack. In reply to another question, the proposal does not create any additional environmental categories.

One commentator opposed the 2,500 microsecond and 4.5% duty cycle dead time requirements of proposed paragraph 2.7.c.(2) of the Federal Aviation Standard because the increase in dead time would permit a loss of transponder replies and would impair the accuracy of symbology used in new automated air traffic control systems. The commentator recommended limiting dead time from external sources to no more than 85 microseconds per suppression period at a random repetition rate such that dead time occupies no more than 2.6% of the time. The FAA does not agree. A maximum of 2,500 microseconds dead time per suppression limited to a 4.5% duty cycle will not inhibit more than one reply per beamwidth at a terminal radar (ARTS) installation. The terminal ATCRBS facilities operate at a nominal 18 hits per beamwidth, and an occasional missing reply out of the 18 replies is not believed serious enough to hinder the accuracy of symbology used in new automated ATC systems.

Another comment contended that the requirement of paragraph 2.7.(c) of the Federal Aviation Standard and paragraph II A. of Part Two in RTCA Document DO–144 could be construed to require duty cycle limitations on inputs capable of generating transponder dead time and that an unnecessary burden could result. While the commentator has correctly stated the requirement, the FAA does not agree that the requirement creates an unnecessary burden. The dead time requirement need only be met taking into consideration the foreseeable inputs to the transponder.

One comment, while supporting the use of the TSO system for the approval of transponders, objected to the incorporation of RTCA Document DO–144 into the TSO. The commentator asserted that DO–144 was intended to fulfill a need for approval of the installed system and that its incorporation would result in a TSO that applies an "approval-per-installation philosophy" placing a burden on the manufacturer which would result in a more costly transponder. Apparently the commentator construed the proposed TSO requirement as referring to both Section II and Section III of Part Two in RTCA Document DO–144. The minimum performance standards specified in the TSO requirement are contained only in Section II. Section III merely describes one acceptable method (but not the only method) of determining compliance with those minimum performance standards. Other methods (not necessarily involving installation of the transponder in an aircraft) may be used.

In connection with Section III of Part Two in RTCA Document DO–144, one comment stated that the test condition specified in subparagraph III B.1.d.(4) is unnecessarily severe. The FAA agrees. However, as noted above, Section III merely describes one acceptable method of determining compliance with the minimum performance standards. If a manufacturer does not choose to use the test condition in subparagraph III B.1.d.(4), he may use any other acceptable test condition, such as repeating the test condition of subparagraph III B.1.d.(2) but with P_3 at the nominal interval following P_1, and combining the interrogation signal set to an interrogation rate of 100 interrogations per second with a non-synchronous single pulse generator operating at 1,000 prf and at an r_f level 10db below that of P_1 and P_3.

Another comment questioned the note following Section III B.1.j.(2) of Part Two in RTCA Document DO-144. An acceptable alternative to that note would be to exclude the intervals between pulses corresponding to a normal Mode 3/A, Mode C, and a side lobe interrogation.

In addition, with reference to RTCA Document DO-144, it should be noted that subparagraphs II A.16.b.(2), (3), (4), (5), and (6) of Part Two of that Document contain standards for ATC transponder equipment systems that incorporate complete altitude reporting capability, including: (1) an analog-to-digital converter, (2) a pressure altitude data source, (3) a capability of reporting pressure altitude, and (4) a correspondence of the reported altitude with the altitude indicated by the aircraft flight altimeter. It was not the intent of the FAA in this rule making action to require ATC transponders to have complete altitude reporting capability. Therefore, the proposal has been revised by adding new §§ 37.180(a)(2)(iii) and (iv) which delete the requirement for compliance with those standards unless the manufacturer elects to provide complete altitude reporting capability. However, the requirement that all transponders reply to Mode C interrogations with framing pulses F_1 and F_2 is retained in order to facilitate the incorporation of complete altitude reporting capability by the transponder users if that capability is required or if the user should desire that feature. The areas of operation in which complete altitude reporting capability will be required, is the subject of the rule making action proposed in Notice 72-12 (37 F.R. 7527).

Following further review of proposed §§ 91.24, 121.345, 127.123, and 135.143, the proposals have been revised to more clearly indicate that ATC transponders may be approved under the TSO system or in conjunction with type certification procedures, or in any manner approved by the Administrator, but in any event they must meet the performance and environment requirements of the applicable TSO standards.

Finally, transponder field tests conducted subsequent to the issuance of Notice 71-10 indicate that a large number of the transponder deficiencies occurring in service could be prevented if the transponder were inspected and adequately maintained. Accordingly, a new § 91.177 is being adopted which requires that after January 1, 1974, ATC transponder equipment installed and used as provided in this amendment must be tested and inspected and found to comply with the maintenance requirements which are being adopted as new Appendix F to Part 43. New § 91.177 applies only to ATC transponders that, under the provisions of § 91.24, § 121.345(c), § 127.123(b), or § 135.143(c), are required to meet the standards specified therein. While this requirement was not proposed in Notice 71-10, the FAA has determined that safety requires that the ATC transponders be inspected annually to assure that they continue to meet the TSO standards. Further delays in implementing this course of action would not be in the public interest. Therefore, this final rule includes inspection and testing requirements for transponders. However, since a compliance date has been established subsequent to the effective date of the amendment, interested persons may submit comments on the new § 91.177 of Part 91 and the new Appendix F to Part 43. The FAA will consider all comments received on or before March 27, 1973, and may further amend the regulations in the light of these comments.

In consideration of the foregoing, Parts 37, 43, 91, 121, 127, and 135 of the Federal Aviation Regulations are amended as follows, effective January 26, 1973.

The amendments are made under the authority of sections 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

NOTE.—The incorporation by reference in this document was approved by the Director of the Federal Register on April 16, 1969.

Amendment 91–108

Aircraft Lease Agreements: Requirements for "Truth in Leasing" Clause

Adopted: December 22, 1972 **Effective: January 3, 1973**

(Published in 38 F.R. 852, January 5, 1973)

This amendment to Part 91 of the Federal Aviation Regulations further clarifies the applicability of § 91.54, which prescribes requirements for including a "truth in leasing" clause in certain leases and contracts of conditional sales involving United States registered large civil aircraft.

Section 91.54 was issued by the FAA on September 27, 1972, as Amendment 91–104, to become effective on January 3, 1973 (37 F.R. 20934). Section 91.54 is intended to apply to only leases and contracts of conditional sale entered into after January 2, 1973. This amendment revises paragraph (a) of § 91.54 to make the intent of the rule expressly clear.

In addition, to make the definition of a lease in paragraph (e) conform to the intent of the rule, this amendment revises the definition to make it clear that the term lease does not include an agreement for the sale of an aircraft, or a contract of conditional sale under section 101 of the Federal Aviation Act of 1958.

Since this amendment is clarifying in nature and imposes no additional burden on any person, I find that notice and public procedure are unnecessary and that good cause exists for making this amendment effective in less than 30 days.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations, as amended by Amendment 91–104, is further amended by amending § 91.54, effective January 3, 1973.

This amendment is made under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-109

Experimental Aircraft, Operating Limitations

Adopted: January 3, 1973 **Effective: January 10, 1973**

(Published in 38 F.R. 1175, January 10, 1973)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to clarify the regulation currently prescribed in § 91.42(c) for the operation of an aircraft that has an experimental certificate.

The current regulation prohibits the operation of an experimental aircraft over a densely populated area or in a congested airway with one exception. This amendment more clearly expresses the intent of the regulation regarding that exception, which is to permit an experimental aircraft to be operated over a densely populated area or in a congested airway only when conducting a takeoff or landing for which the FAA has issued special operating limitations and when conducting the takeoff or landing in accordance with the terms and conditions of those operating limitations.

Since this amendment is clarifying in nature, I find that notice and public procedure thereon is unnecessary and that good cause exists for making it effective on less than 30 days' notice.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective January 10, 1973, by amending § 91.42(c).

This amendment is issued under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1424), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-110

Inspection of Large and Turbine-Powered Multiengine Airplanes—Subpart D

Adopted: January 22, 1973 **Effective: January 22, 1973**

(Published in 38 F.R. 2963, January 31, 1973)

The purpose of these amendments to § 91.217 of Part 91 of the Federal Aviation Regulations is to permit continued operation of certain airplanes after January 22, 1973, for which required inspection programs cannot be approved by that date.

Section 91.217, effective October 23, 1972, provides that no person may operate a large or turbine-powered multiengine airplane after January 22, 1973, unless that airplane is inspected in accordance with an inspection program selected under the provisions of that section. The section further provides that the required inspection program must meet one of five criteria set forth therein. The acceptability of programs under four of the five criteria may be determined without FAA assistance, and an owner or operator selecting such a program has merely to notify the FAA of his choice. For a program to be acceptable under the fifth criterion, however, the section requires that it be approved by the FAA prior to its use. Due to the number of such programs that have been submitted to the FAA for approval action may not be possible on all such programs before January 22, 1973. Nevertheless, under present § 91.217 no person would be permitted to operate an airplane for which such action is pending, notwithstanding the fact that the owner or operator had complied with the rule. At the time the rule was adopted the FAA did not anticipate any difficulties in meeting the compliance time established. However, it now appears that the FAA will be unable to process all of the pending applications prior to January 22, 1973. Furthermore, the FAA has determined that such airplanes can continue to be operated without compromising safety, pending FAA action on the programs, provided they continue to be inspected in accordance with their present inspection programs. Accordingly, § 91.217 is being amended to provide that an airplane for which the owner or operator has submitted, on or before January 22, 1973, an inspection program requiring FAA approval, may be operated pending FAA action on the program, as long as the aircraft continues to be inspected in accordance with Subpart C of Part 91.

Since this amendment is an extension of the effective date of a new requirement and imposes no additional burden on any person, I find that notice and public procedure hereon are unnecessary and that good cause exists for making this amendment effective on less than 30 days notice.

In consideration of the foregoing, § 91.217 of Part 91 of the Federal Aviation Regulations is amended, effective January 22, 1973, by amending paragraphs (a) and the lead-in statement of paragraph (b), and adding a new paragraph (f).

This amendment is made under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and of section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–111

Miscellaneous Amendments

Adopted: January 23, 1973 **Effective: November 1, 1973**

(Published in 38 F.R. 3156, February 1, 1973)

This amendment was made in conjunction with the issuance of Amendment 61–60 to Part 61. The purpose of these amendments is to revise the standards for issuing pilot and flight instructor certificates and ratings and to adopt recent experience and proficiency check requirements for pilots-in-command. A complete explanation is contained in the preamble to the amendment which is reproduced in Part 61.

Amendment 91-112

Civil Aircraft Sonic Boom

Adopted: March 23, 1973 **Effective: April 27,1973**

(Published in 38 F.R. 8051, March 28, 1973)

The purpose of this amendment is to afford the public protection from civil aircraft sonic boom. The primary basis for this amendment is section 611 of the Federal Aviation Act of 1958 (49 U.S.C. 1431). This amendment prohibits the supersonic flight of civil aircraft except under the terms of an authorization to exceed Mach 1.

This amendment is based on a Notice of Proposed Rule Making (Notice 70-16) issued on April 10, 1970, and published in the Federal Register on April 16, 1970 (35 F.R. 6189). Interested persons have been afforded an opportunity to participate in the making of these amendments. Due consideration has been given to all matter presented.

Pursuant to 49 U.S.C. 1431(a), the Federal Aviation Administration has consulted with the Secretary of Transportation, concerning all matters contained herein, prior to the adoption of this amendment. Pursuant to section 8(b) of the Guidelines of the Council on Environmental Quality concerning statements on proposed Federal actions affecting the environment, published in the Federal Register on April 23, 1971 (36 F.R. 7724), the Federal Aviation Administration has submitted this amendment to the Environmental Protection Agency for review and comment.

Several comments in response to Notice 70-16 expressed concern for the airport noise levels to be expected from supersonic aircraft. The problem of airport noise levels is distinct from the sonic boom problem and is the subject of separate proposed regulatory action by the FAA (see Notice 70-33, Civil Supersonic Aircraft Noise Type Certification Standards, Advance Notice of Proposed Rule Making, issued on August 4, 1970, and published in the Federal Register (35 F.R. 12555) on August 6, 1970).

Comments expressed concern that the exhaust of supersonic transport aircraft could have long-term environmental effects on the upper atmosphere. Under the Clean Air Amendments of 1970 (P.L. 91-604, December 31, 1970), Part B of Title II of the Clean Air Act, as amended, provides, in § 231, that the Administrator of the Environmental Protection Agency shall issue "emission standards applicable to emissions of any air pollutant from any class or classes of aircraft or aircraft engines which in his judgment cause or contribute to or are likely to cause or contribute to air pollution which endangers the public health or welfare." When such standards are issued for supersonic aircraft, the Department of Transportation will comply with § 232 of that Act, which directs the Secretary of Transportation to prescribe regulations to ensure compliance with all standards prescribed under § 231. Such regulation, however, is distinct from the purpose of this amendment, which is limited to the control and abatement of sonic boom.

The policy of environmental management underlying this amendment is, first, that the burden of establishing the environmental acceptability of new and potentially harmful action rests on the proponent of such actions rather than on the potentially affected public,.but, second, that where consistent with this objective, reasonable opportunity for demonstrating or developing environmental acceptability should be available to the proponent of action who is willing and able to control his demonstration of acceptability in the public interest. Reasonable opportunity for the operators or manufacturers of civil supersonic aircraft to conduct sonic boom research is thus provided, in this amendment, in the form of closely controlled authorizations to exceed Mach 1 in designated test areas (where the test cannot be safely or properly conducted offshore.)

However, it is not intended that any of the burden of environmental risk be shifted to the general public in the form of an uncertain probability of sonic boom annoyance. The policy against causing the public at large to bear the risk of annoyance caused by sonic boom experimentation provides the basis for rejecting comments to the Notice suggesting that regular air carrier routes be used as experimental sonic boom corridors. Contrary to the concern expressed in some comments, there is no authority whatsoever in this amendment for sonic boom producing flight over the United States except in the designated test areas.

Several comments concerned operation of supersonic aircraft outside of the United States. Two main issues were stressed. First was the concern that sonic booms may be injurious to sea life, damaging to ships, or annoying to persons at sea. In addition, there was considerable concern expressed that, because of the width of the sonic boom swath, the borders of the United States may be subjected to sonic booms generated by supersonic aircraft that are outside of the United States. Both of these issues involve regulation of foreign aircraft in international airspace over the high seas. For this reason, international concern and cooperation is a highly desirable part of any satisfactory resolution of these issues on a worldwide basis. In this connection, the National Environmental Policy Act of 1969 states (§ 102(2)(E)) that the proper response to worldwide environmental issues is for Federal agencies, where consistent with U.S. foreign policy, to "lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment." Since before the passage of that Act, the International Civil Aviation Organization (ICAO) has been actively engaged in establishing a basis for international sonic boom control for civil aircraft. To this end, the ICAO sonic boom panel, with United States representation, has been meeting since 1969 to study the problem. In March of 1971, the ICAO Council, in further recognition of the importance of the sonic boom problem, replaced the sonic boom panel with a committee having wider scope and reporting directly to the Council. The United States is represented in all proceedings of the Sonic Boom Committee. In response to public comments, the FAA believes that the form of international cooperation now underway provides an appropriate means of orderly investigation of the sonic boom problem over the high seas.

Several comments stated that the Notice was unclear with respect to the intent of the FAA to protect the territorial seas of the United States from sonic boom. The intent fo this amendment is to provide the territorial seas of the United States with the same degree of sonic boom protection that is provided for the land areas of the United States. For this reason, the words "excluding the territorial waters thereof," which appeared in proposed § 91.55(c), are deleted from this amendment.

One comment requested that the final rule include military aircraft and not be limited to civil aircraft. The limitation to civil aircraft is appropriate at this time to reflect the limits of regulatory authority under Title VI of the Federal Aviation Act of 1958, which provides the primary legal basis for this amendment.

Concern was expressed that the general terms of the provisions for the issuance of authorizations to exceed Mach 1 will actually authorize what the rule is designed to prohibit. It was stated, for example, that the words "necessary for aircraft development" could be interpreted as permitting almost any sonic boom producing flight desired by those concerned with aircraft development. The FAA agrees that proposed § 91.55(b) could be read as implying that an authorization to exceed Mach 1 would be issued upon a mere showing that one of the listed categories (e.g. aircraft development) applies. This was not intended. The intent of the proposal was to require environmental investigation of the effects of the issuance of an authorization to exceed Mach 1 for flight in a designated test area. For this reason, proposed § 91.55(e) provided that "an application for an authorization to exceed Mach 1 may be denied if the Administrator finds that such action is necessary to protect and enhance the environment." However, in order to more adequately describe the extent of the environmental investigation that is intended, this amendment requires the applicant for an authorization to exceed Mach 1 in a designated test area to submit all information deemed necessary to permit the Administrator to comply with the National Environmental Policy Act of 1969 and related Executive Orders, guidelines, and orders, that are determined to apply to the issuance of an authorization or designation of a test area. In addition, in agreement with other comments, the provision for issuance of authorizations to exceed Mach 1 for flights "necessary for aircraft development" is eliminated from this amendment for reasons discussed below.

Several comments requested that all opportunity for supersonic airworthiness investigations and sonic boom flight testing be eliminated from the final rule and stated that no provision should exist for the issuance of an authorization to exceed Mach 1 under any condition. Abandonment of civil supersonic air transportation technology itself is in effect urged by these comments. The FAA agrees that the rule should not permit environmentally unacceptable authorizations to be issued. However, the FAA does not agree that the legitimate concern for environmental controls on supersonic flights provides a sound policy basis for requiring that the technology of civil supersonic air transportation itself be prevented from developing in forms that are environmentally acceptable and that are also safe, convenient, productive, and profitable to future generations. Such abandonment of emergent technology is not a rational substitute for its controlled growth. Experimentation and research are an inescapable aspect of environmental, as well as technological, improvements in the public interest, where complex technologies and their interactions are involved. Further, such research is also necessary to promote exploration and understanding of the complex interface between technology and quality of life so that both may be maximized, consistent with the policy of "productive harmony" in section 101(a) of the National Environmental Policy Act of 1969. Finally, concerted and controlled research efforts may actually achieve a supersonic vehicle that delivers more transportation more quickly with less total environmental cost than subsonic aircraft delivering the same necessary service volume, and the fruits of this research may have environmentally beneficial secondary impacts in the development of other aircraft classes.

It is believed that environmentally responsible growth, not the abandonment of growth, was intended by that Act, which directs Federal agencies to consider environmental amenities "along with" (not in lieu of) economic and technological considerations. Closely controlled experimentation and research are also consistent with the commitment to responsible growth in the President's State of the Union address of June 22, 1970, which states that "the argument is increasingly heard that a fundamental contradiction has arisen between economic growth and the quality of life, so that to have one we must forsake the other. The answer is not to abandon growth, but to redirect it."

It should also be noted, as stated above, that the detailed provisions for environmental analysis and public coordination of environmental statements in the Guidelines of the Council on Environmental Quality will be complied with in the designation of test areas and in the issuance of authorizations to exceed Mach 1 where such actions are determined to be major Federal actions significantly affecting the quality of human environment. The policy of environmental protection in the National Environmental Policy Act of 1969 will be complied with in the issuance of authorizations to exceed Mach 1. Therefore, it is not believed that a rule preventing all regulatory opportunity for sonic boom experimentation and research is necessary from an environmental standpoint.

Several comments stressed the current lack of definitive conclusions regarding the effect or acceptability of civil aircraft sonic booms, and urged that steps be taken later to determine whether environmentally acceptable boom generating characteristics can be developed and that the rule be periodically reviewed to take advantage of new knowledg concerning sonic booms. Closely related to this comment was a request that the FAA should now be regulating only the sonic boom characteristics (signatures), not flight conditions such as speed. The FAA agrees that the technology of supersonic air transportation should be given fair opportunity to prove itself fully compatible with the environment. For this reason, the rule contains provisions for flight testing, in designated test areas only, where necessary to establish means of reducing or eliminating the effects of sonic boom (and where the test cannot be safely or properly conducted offshore), subject to FAA's duty to comply with all applicable environmental statutes, executive orders, and guidelines. The FAA further agrees that the regulation should be reviewed to relieve any restrictions that are demonstrated not to be necessary for consistency with all applicable environmental statutes, executive orders, and guidelines. However, under the current state of the art of sonic boom control, there is no basis for establishing an "acceptable" overpressure limit, nor is there any assurance that a regulation that addresses only the sonic boom "signature" can provide a predictable basis for protecting the public from sonic boom of any given intensity. Further, it is doubtful that such a rule could be fairly and effectively enforced since, as pointed out in another comment, flight crews at present have no means of monitoring or sensing the surface "signature" of sonic booms. The Mach meter, on the other hand, even under today's limited knowledge, can be both an effective shield of the public from sonic boom and a clear and unambiguous indicator of violation to the flight crew. The FAA therefore believes that, under the current limits of sonic boom control technology, control of flight conditions (e.g. speed) is necessary in order to ensure effective control of sonic boom generation at the source and believes that the speed limit established as a general operating rule should positively prevent sonic boom generation that could affect the surface. Mach 1 is believed to be such a speed limit. In this connection, the FAA does not agree with other comments suggesting that a high subsonic speed limit, rather than Mach 1, is necessary to prevent sonic boom from reaching the surface.

A similar comment concluded that the proposed rule, by banning sonic boom rather than permitting acceptable sonic booms, would so becloud the future operability of small supersonic civil aircraft as to make it unrealistic to seek financing for their development. The commentator stated that, "it would be unacceptably risky to incur the preliminary design, scale model, prototype, and testing costs, without which there could be no prospect of even starting to find out whether the end product of development could operate as far as sonic boom characteristics are concerned." The FAA believes that, until a truly acceptable and controllable sonic boom signature can be conservatively demonstrated, the aircraft industry must weigh the above cited risk against the market potential for the aircraft. For the company that decides that the potential market is worth the investment risk, this amendment offers opportunities for that company to demonstrate the environmental acceptability of its sonic boom characteristics. In the meantime, as stated above, it is not believed that the risk cited by the commentator should be shifted to the general public in the form of an uncertain and uncontrolled probability of disturbance from sonic boom. This would be the result of attempting to define an acceptable sonic boom under the limitations of current knowledge.

It should be noted that none of the industry comments recommending an operating authority to create "acceptable" sonic booms contained any evidence that would support a definition of "acceptability" in terms of specific overpressures, any evidence that industry has developed means of controlling those overpressures, or indeed, any evidence that overpressure itself is a proper index of annoyance.

One comment stated that the proposal was in effect a combination of certification and operating rule, that any showing of sonic boom characteristics should therefore be required of applicants for type certificates (e.g. manufacturers) rather than operators, as in the case of other type certification rules, and that operators should only be required to comply with type certification operating limitations and should not have to go through the environmental or other demonstrations involved in the issuance of an authorization to exceed Mach 1. When and if the technology of predicting and closely controlling the generation of clearly acceptable sonic booms reaches a level of certainty comparable to that involved in the airworthiness determinations now made by the FAA during type certification, some provision for approving flight in excess of Mach 1 might conceivably become an appropriate aspect of type certification (together with appropriate operating limitations). However, under the current rudimentary state of the art of sonic boom prediction and control, no approval to exceed Mach 1 should be given during type certification, particularly since such approval would thereby become protected by the procedural requirements applicable to the amendment, modification, suspension, or revocation of certificates under section 609 of the Federal Aviation Act. At this early stage in the development of civil supersonic air transportation, it is believed that type certification is too cumbersome a procedure to provide the continuous and flexible administrative control and review that is necessary to ensure that no unacceptable environmental impacts from sonic boom research. In the light of the increasing public concern for environmental understanding and control, the flexibility and control inherent in the form of operating rule contained in this amendment (and not available in type certification) is also believed to be necessary to ensure that supersonic air transportation is given a fair chance to prove itself compatible with environmental values while at the same time protecting those values as research progresses.

Several comments opposed the proposal not on its specific merits but on the basis that all sonic boom control should be done directly by the Congress. The Department of Transportation appreciates the concern that underlies these comments and has on previous occasions stated to Congressional committees that no objections would be interposed to further Congressional action *per se* to protect the public from sonic boom. Any forthcoming statutes concerning sonic boom will be administered by the Department if such is the will of the Congress. In the meantime, the Department recognizes that the question of who provides protection from sonic boom is secondary to the need to provide effective protection, and intends to ensure that the public receives the full measure of protection from sonic boom intended by the Congress in Public Law 90-411 and subsequent environmental laws, executive orders, and guidelines.

One comment stated that the FAA should make clear the right of State and local municipal authorities to enact their own restrictions on supersonic overland flights and sonic booms. This would be inappropriate in view of the Federal preemption of the flight of aircraft as acknowledged in legislative history of Public Law 90-411. Senate Report 1353 (90th Cong. 2d session, July 1, 1968) accompanying H.R. 3400 specifically states that "since the flight of aircraft has been preempted by the Federal Government, State and local governments can presently exercise no control over sonic boom. The bill makes no change in this regard." (p. 7).

One comment suggested that the regulation provide an exception to permit operation at speeds in excess of Mach 1 for safety, stating that there may be emergency situations where a pilot may have to increase speed (such as in an emergency descent) in order to protect his aircraft and passengers. The current emergency deviation authority given the pilot in command by § 91.3 is adequate in this regard.

One comment stated that the rule should be clarified to indicate that the "conditions and limitations" referred to in proposed § 91.55(c) include weather or other atmospheric conditions. Atmospheric conditions are a fundamental variable affecting the propagation of sonic boom. They are thus a fundamental portion of the conditions and limitations referred to in § 91.55. It is not believed that further clarification is necessary.

One comment raised a potentially important point with respect to the meaning of the phrase "cause a sonic boom to reach the surface." In this connection, the question was asked whether a pressure event that was not perceptible by man but was detectable by instruments on the surface would be considered a "sonic boom." Perceptibility or audibility are highly subjective variables. These variables are closely related to the equally subjective concept of "acceptability" as applied to sonic boom overpressure control and limitation. As stated above, the technology of sonic boom propagation control has not yet achieved a prediction capability adequate to ensure public protection from sonic boom. Thus, while a measurable but imperceptible boom might be demonstrated under one set of atmospheric conditions, an attempt to duplicate the event, under today's limited knowledge, may result in a perceptible boom on the surface. Considering all of the above factors, together with the Department's commitment to provide real and effective sonic boom protection as research proceeds, it is believed reasonable to require public protection from "measurable sonic boom overpressures." This term is therefore adopted in this amendment in response to this comment.

One comment stated that there is no proof of any incompatibility between the quality of the environment and the technical and economic advantages of supersonic transportation, that no civil supersonic transport will be put into service for years, that research should yield much information during this period, and that no emergency requiring this amendment exists at this time. The commentator stated that most activities involved in economic progress "entail favorable consequences for some people and unfavorable for others" and urged that this amendment either be postponed or that it be revised to incorporate language that would permit sonic boom to reach the surface provided that such sonic boom does not "create damage" to people, property, and environment.

With respect to the question of the timing of this amendment the FAA does not believe that the potential for further research justifies postponement of this amendment until supersonic air transportation is imminent. While the FAA agrees that no emergency now exists, early promulgation of this amendment is believed to be appropriate in order to ensure that, to the maximum extent possible, persons concerned with the development or future operation of supersonic civil aircraft will not miscalculate and make major technological decisions on the economic assumption that regular overland sonic boom may ultimately be permitted. Also, under the influence of an early regulation, industry efforts to develop environmentally acceptable alternative designs, such as the supercritical wing for efficient cruise at transonic speeds, may be further encouraged.

With respect to the request to permit all sonic booms that do not "create damage" on the surface, it is believed that not only is such a standard vague and difficult to enforce since proof of damage is best left to the courts, but such a standard ignores the fact that much annoyance and environmental disturbance might thereby be permitted short of actual damage. The goal of the FAA is to prevent the disturbance itself and not permit the level of public protection to decay to the point of actual damage.

One comment opposed the proposed procedure under which an authorization to exceed Mach 1 could be terminated, without notice or other protective process, if the Administrator determines that such action is necessary to protect the environment. The authority to operate supersonically is not viewed as a matter of right but as a privilege conditioned entirely upon demonstrated ability to control the environmental effects of such operation in the public interest. If, at any time and for any reason, the effects of such flight are not being controlled within the conditions and limitations under which an authorization is issued, or those conditions and limitations are determined to be environmentally inadequate, no vested interest in continuing such flight is created by the authorization and its effectiveness must remain within the immediate control of the FAA. However, it is believed that the necessary authority to take immediate action against the authorization can be properly exercised by temporary amendment or suspension pending final amendment or termination, and that procedural fairness can be better served, consistent with environmental protection, by providing for immediate temporary amendment or suspension rather than immediate termination, and by permitting the holder to show, during the period of temporary amendment or suspension, why the authorization should not be finally amended or terminated. This change is incorporated in this amendment.

One comment concluded that, because the flights for which an authorization to exceed Mach 1 may be issued are described in the singular, the rule prohibits the grant of an authorization to exceed Mach 1 covering more than one flight. This is not correct. In this amendment, as throughout the Federal Aviation Regulations, the singular includes the plural (see § 1.3, Rules of Construction, in Part 1 of the Federal Aviation Regulations). The extent of the coverage of an authorization will be determined, in large part, by the completeness of control over sonic boom demonstrated by the applicant.

One comment pointed out that Part 91 is used by a wide range of general aviation and other subsonic operators and should be kept as useful as possible to them. The FAA agrees. Therefore, the detailed provisions concerning authorizations to exceed Mach 1 are issued as new Appendix B of Part 91, leaving in the main body of that Part only the prohibition against supersonic flight without an authorization to exceed Mach 1.

One comment questioned the provision for issuance of an authorization to exceed Mach 1 for flights that are "necessary for aircraft development" (in addition to flights that are necessary to show compliance with airworthiness rules or necessary for sonic boom research). If the flight is neither necessary for airworthiness compliance purposes not necessary for sonic boom research, the FAA agrees that no separate and clear reason for permitting supersonic flight is stated in the words "necessary for aircraft development." These words are therefore omitted from this amendment. Also, since the purposes of § 2(a)(1) and (3) are not limited to pure "research and development," those words are deleted from the section. No substantive change from the notice results.

One comment requested that the rule be modified to eliminate authority to grant permission for overland supersonic flight in designated test areas where the purpose of the flight can be achieved by overocean flight. The FAA agrees that feasibility of overocean testing is a valid consideration in the issuance of authorizations to exceed Mach 1 in designated test areas over the United States. This amendment therefore requires applicants for such authorizations to show why the flight test cannot be safely or properly conducted over the ocean.

In consideration of the foregoing, Subchapter F of Chapter I of Title 14 of the Code of Federal Regulations is amended effective April 27, 1973, as to all persons, by amending Part 91 of the Federal Aviation Regulations as hereinafter set forth:

This amendment is issued under the authority of sections 307(c), 313(a), and 611 of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c), 1354(a), and 1431), sections 2(b)(2) and 6(c) of the Department of Transportation Act (49 U.S.C. 1651(b)(2) and 1655(c), Title I of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), and Executive Order 11514 (Protection and Enhancement of Environmental Quality, March 5, 1970).

Amendment 91–113

Speed Limits in Terminal Control Areas

Adopted: March 22, 1973 **Effective: April 28, 1973**

(Published in 38 F.R. 8134, March 29, 1973)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to rescind the airport traffic area speed limits within those airport traffic areas which are located within Terminal Control Areas (TCAs). This amendment was proposed in Notice No. 72–22, issued on August 9, 1972 (37 F.R. 16622).

Interested persons were afforded an opportunity to participate in the rulemaking through the submission of comments. Due consideration was given to all relevant matter presented.

The public comments generally supported the proposal or offered no objection. One comment concurred in the proposed rule change but suggested that the amendment be changed to eliminate all airspeed limitations in TCAs. The FAA believes that elimination of all airspeed limitations within TCAs is not justified. One of the stated purposes of the 250-knot speed limit (when originally established below 10,000 feet MSL within 30 miles of the destination airport) was to enhance the pilot's ability to comply with IFR flight procedures in terminal areas. Since the air traffic situation in terminal areas is constantly changing, the pilot operating under IFR within such areas must be prepared, with little prior notice, to enter a holding pattern, to turn his aircraft to a new course or to interrupt, or to begin a climb or descent. To ensure rapid compliance with such air traffic control clearances or instructions, the speed of the aircraft must be limited in such a manner as to permit maneuvering without using the excessive amount of airspace required by high speed operations. Retention of the 250-knot limit in TCAs is, therefore, desirable.

One comment suggested that 200 knots be established as the speed limitation for all aircraft operating in TCAs. It is believed, however, that this would be unnecessarily restrictive. The 250-knot limitation is adequate to ensure a safe operating environment within TCAs.

Another comment suggested that the proposed change be held in abeyance until it is determined whether implementation would have an adverse environmental impact. The FAA has given consideration to the probable environmental impact of the proposed rule change and has concluded that eliminating the 200-knot speed limit would have no significant environmental impact.

Authority: Sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a)), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended effective April 28, 1973.

Amendment 91–114

Updating of References

Adopted: May 1, 1973 **Effective: November 1, 1973**

(Published in 38 F.R. 12203, May 10, 1973)

The purpose of these amendments is to update the references to certain sections of Part 61 of the Federal Aviation Regulations that are incorporated in Parts 91, 121, 141 and 183 of the FARs.

By Amendment No. 61–60 dated February 1, 1973, (38 F.R. 3156), the FAA adopted a substantial revision to Part 61 which resulted in the renumbering of the sections in that Part. Some of the affected sections are incorporated by reference in Parts 91, 121, 141 and 183 of the FARs. Therefore, in order to make the references in those Parts consistent with the revised Part 61, these amendments are necessary.

Because of the extent of the changes necessary with respect to the Part 61 references in Part 135, those reference corrections are being processed in a separate rule-making action.

Since these amendments are editorial in nature and impose no additional burden on any person, I find that notice and public procedure thereon are unnecessary.

In consideration of the foregoing, Parts 91, 121, 141 and 183 of the Federal Aviation Regulations are amended effective November 1, 1973.

These amendments are made under the authority of § 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91–115

Helicopters at Heliports Over Water; Operating Limitations

Adopted: May 10, 1973 **Effective: May 17, 1973**

(Published in 38 F.R. 12904, May 17, 1973)

The purpose of these amendments to Part 91 of the Federal Aviation Regulations is to permit helicopters, under certain prescribed conditions, to make transient flights through the prohibited range of the limiting height-speed envelope when taking off or landing at certain heliports constructed over water.

These amendments are based on Notice of Proposed Rule Making No. 72–13, published in the Federal Register on May 18, 1972 (37 F.R. 10005). These amendments and the reasons therefor are the same as those contained in the subject Notice.

The comments received in response to Notice 72–13 generally supported the proposal. However, one commentator questioned the rationale for the amendment. In this regard, we wish to further explain that § 29.79 requires that a limiting height-speed envelope be established for any combination of height and forward speed under which a safe landing cannot be made under specified power failure conditions. Compliance with that regulation is shown by demonstrating that a safe landing can be made when an engine failure is simulated at various combinations of heights and speeds which represent the boundary of the limiting height-speed envelope established for the helicopter. The nature of the flight test demonstrations results in a limiting height-speed envelope which is conservative; consequently, some margin of safety exists between the envelope established for the helicopter and some smaller envelope defined by the combination of heights and speeds at which a safe landing cannot actually be made.

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As was pointed out in the Notice, the heliports to which this amendment to § 91.31 applies may be constructed over any body of water; however, as stated in new paragraph (d), the transient flight through the prohibited range must occur while the helicopter is over water on which a safe ditching can be accomplished in the event that an engine failure does occur.

In the light of the foregoing, and for the reasons given in Notice 72-13, we are of the opinion that a safe emergency ditching can be made in the event of a hazardous flight condition requiring such action if the helicopter is amphibious or is equipped with adequate flotation gear.

These amendments are issued under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1423), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, and for the reasons given in Notice 72-13, § 91.31 of Part 91 of the Federal Aviation Regulations is amended, effective May 17, 1973, by amending paragraph (a) and adding a new paragraph (d).

Amendment 91–116

ATC Transponder and Automatic Pressure Altitude Reporting Equipment Requirements, and Conforming Amendments

Adopted: May 25, 1973 **Effective: July 20, 1973**

(Published in 38 F.R. 14672, June 4, 1973)

The purpose of these amendments to Parts 71 and 91 of the Federal Aviation Regulations is to require aircraft operating in certain designated controlled airspace to be equipped with ATC (Air Traffic Control) transponder and associated pressure altitude reporting equipment, and to make related conforming amendments.

These amendments are based upon Notice 69-9, published in the Federal Register on March 14, 1969 (34 F.R. 5259), Supplemental Notice 72-12, published in the Federal Register on April 15, 1972 (37 F.R. 7527) and Supplemental Notice 72-12A, published in the Federal Register on June 24, 1972 (37 F.R. 12508). These Notices, in turn, were based on Advance Notice of Proposed Rule Making 65-9, published in the Federal Register on April 29, 1965, which included long term proposals concerning the possible use of improved ATC transponders in the National Airspace System. In addition, these amendments include conforming amendments based on the above Notices and on Notice 71-10 published in the Federal Register on March 30, 1971. Interested persons have been afforded an opportunity to comment on the amendments contained herein, and all relevant matter submitted has been considered in the issuance of these amendments.

I. *Background of these amendments.*

Notice 69-9, issued March 3, 1969, proposed to require that all aircraft operating in certain designated controlled airspace be equipped with an improved radar beacon transponder having a Mode 3/A 4096 code capability, and having a Mode C automatic altitude reporting capability (e.g. automatic pressure altitude reporting equipment). The objective of the proposal was to improve air traffic control system effectiveness through additional IFR beacon tracking and automatic altitude reporting capability. The proposal was also designed to reduce the mid-air collision potential by requiring certain VFR flights operating in selected airspace to respond automatically to interrogations by transmitting position and altitude. Specifically, Notice 69-9 proposed that a 4096 code Mode 3/A transponder and Mode C automatic altitude reporting capability be required, effective January 1, 1973, of both VFR and IFR aircraft in controlled airspace at or above 10,000 feet MSL (mean sea level) in the 48 contiguous States; in positive control airspace; and in specified terminal airspace.

Most comments received in response to Notice 69-9 were unfavorable (approximately 80 percent), and stated that the proposed rule would impose excessive equipment requirements or airspace restrictions on certain classes of users. In general, the favorable comments received in response to Notice 69-9 were based upon an anticipated increase in safety and in airspace utilization. The concern on the part of many users, along with developments subsequent to the issuance of that Notice, caused the FAA to review the scope of the proposed amendments. After weighing the original objectives along with the comments received in response to Notice 69-9, the FAA concluded that its original proposal might be more restrictive than necessary and determined that further opportunity should be afforded to interested persons to submit comments on a modified, less restrictive concept of improved transponder employment.

Consequently, Supplemental Notice 72-12 was issued on April 11, 1972, containing certain new proposals pertaining to the airspace and conditions in which the improved transponder would be required. The Supplemental Notice differed from Notice 69-9 in that it proposed to require the improved transponder in positive control areas and controlled airspace above 12,500 feet MSL for en route operations, excluding airspace less than 1,500 feet AGL (above ground level). The proposed use of the improved transponder in terminal airspace was also relaxed under the Supplemental Notice, since, while all aircraft, including helicopters, would be required to have the improved transponder for operations in both Group I and II TCAs, pilots operating VFR and not desiring separation service would not need to communicate with ATC in the Group II

TCAs. In 42 other ARTS III equipped "terminal areas," any aircraft being provided separation service would not, under the Supplemental Notice, be required to be transponder equipped. Authority for the granting of deviations by ATC was also proposed. The other significant relaxation in the Supplemental Notice extended the implementation date to January 1, 1974, for terminal airspace and July 1, 1975, for en route airspace.

Paralleling this background was a separate Notice of Proposed Rule Making (Notice 71-10) which proposed to provide new technical standards for airborne ATC transponder equipment and to require that transponders in aircraft meet TSO standards. This Notice was published in the Federal Register on March 30, 1971 (36 F.R. 5853) and was followed by regulations published on December 27, 1972, amending Parts 37, 43, 91, 121, 127, and 135 of the Federal Aviation Regulations. The amendment to Part 91 added, among other requirements, a new § 91.24, requiring ATC transponder equipment installed after January 1, 1974, or used after July 1, 1975, to meet the standards in TSO-C74b or any class of TSO-C74c, as appropriate, except that the Administrator may approve the continued use of TSO-C74 or TSO-C74a equipment after July 1, 1975, under certain conditions.

The amendment issued herein pulls these two separate regulatory programs together in § 91.24 and makes conforming changes in Part 91 to ensure consistency among the several transponder requirements already in that Part. Specifically, the regulatory language in current § 91.24 is redesignated as § 91.24(a), and the appropriate cross reference to § 91.24 in § 91.177 is amended accordingly to refer to § 91.24(a) only. The requirements proposed in Notice 72-12 concerning the need for the improved transponder and associated automatic pressure altitude reporting equipment in specified airspace are issued hereunder in new § 91.24(b) so that the relationship between these requirements (and their respective dates of compliance) and the TSO standards and related requirements (and their respective dates of compliance) in § 91.24(a) can be more easily seen and understood by aircraft operators. The ATC deviation authority proposed in Notice 72-12 is contained, in shortened form, in new § 91.24(c). In order to prevent apparent conflicts between the other transponder requirements currently in Part 91 and the amendments contained in § 91.24, appropriate editorial cross references to § 91.24 are made in §§ 91.90, 91.97, and 91.99. No substantive change is made by these editorial amendments. The "terminal area" concept in Notice 72-12 is issued, in slightly relaxed form, under the name "Group III Terminal Control Area" (see discussion below under "Miscellaneous Comments").

II. *Summary of requirements added by this amendment.*

The regulations should be consulted for the details of the new requirements. The following summary is provided only to present an outline of the regulations as changed by this amendment.

This amendment specifies the controlled airspace within which two types of equipment are required. These are (i) a Mode 3/A 4096 code transponder, and (ii) automatic pressure altitude reporting equipment. No change is made to the floor or other configuration of any controlled airspace in this amendment. This amendment does not designate new terminal control areas.

After the pertinent compliance dates of these requirements (see discussion under paragraph III below), the new equipment is required in the following airspace under this amendment:

A. All controlled airspace of the 48 contiguous States and the District of Columbia that is above 12,500 feet MSL, excluding the airspace at and below 2,500 feet AGL. Gliders are excluded from this requirement up to 18,000 feet MSL, which is the floor of the positive control area.

B. Terminal Control Areas regulated under § 91.90. These include terminal airspace in which the current or projected traffic density is great enough to require the new equipment for protection to aircraft and for system efficiency. Helicopters operating at or below 1,000 feet AGL under a letter of agreement are excluded from this requirement in all terminal control areas. Terminal control areas include the following:

1. *Group I Terminal Control Areas.* Nine of these high activity areas have been designated, including Atlanta, Boston, Chicago, Dallas-Fort Worth, Los Angeles, Miami, New York, San Francisco-Oakland, and Washington National. These are the only ter-

minal control areas, of any classification, now designated. Operation in these areas requires both the new equipment and ATC authorization prior to entry (in addition to the other requirements in § 91.90(a)).

2. *Group II Terminal Control Areas.* Twelve locations are being considered for designation as Group II Terminal Control Areas. These include Cleveland, Denver, Detroit, Houston, Kansas City, Las Vegas, Minneapolis, New Orleans, Philadelphia, Pittsburgh, Seattle, and St. Louis. These designations would be accomplished by separate rule-making action with notice and public procedure. As in the case of Group I Terminal Control Areas, there is no general exception (other than for helicopters, as mentioned above) to the requirement for the new equipment in Group II Terminal Control Areas. Unlike Group I Terminal Control Areas, however, an ATC authorization prior to entry is not required for VFR aircraft that do not land or takeoff within the Group II Terminal Control Area. This provides needed flexibility for VFR flights that do not wish to communicate with or receive separation service from an ATC facility, and that are transiting the Group II Terminal Control Area without landing or taking off. The altitude data provided by all aircraft will assist controllers in vectoring aircraft receiving separation service clear of aircraft that are not receiving separation service.

3. *Group III Terminal Control Areas.* As stated in Notice 72–12, 42 locations are being considered for designation as "Terminal Areas" (herein redesignated as "Group III Terminal Control Areas"). These locations include Albany, Albuquerque, Baltimore, Birmingham, Buffalo, Burbank, Charlotte, Cincinnati, Columbus, Dayton, Des Moines, El Paso, Hartford, Honolulu, Indianapolis, Jacksonville, Louisville, Memphis, Milwaukee, Nashville, Norfolk, Oklahoma City, Omaha, Ontario, Orlando, Phoenix, Portland, Providence, Raleighn-Durham, Rochester, Sacramento, Salt Lake City, San Antonio, San Diego, San Juan, Santa Ana/Long Beach, Shreveport, Syracuse, Tampa, Tucson, Washington-Dulles. As in the case of Group II Terminal Control Areas, these Group III Terminal Control Areas will be designated in separate rule-making actions with notice and opportunity for public participation. Unlike Group I and Group II Terminal Control Areas, the new equipment is not required if two-way rado communications are maintained within the terminal control area between the aircraft and the ATC facility, and the pilot provides position, altitude and proposed flight path prior to entry.

III. *Relation to TSO requirements: Chronology of compliance dates.*

Since the requirements in this amendment are closely related to the recently adopted transponder requirements in § 91.24, particularly with respect to compliance dates, a combined summary of the chronological effect of the regulations is furnished. Some repetition of the above discussion exists in order to permit demonstration of the combined effect of the compliance dates in current § 91.24 and those in this amendment. This summary contains only the broad outline of the requirements. The regulations should be consulted for the details of these requirements and for the exceptions and deviation provisions in the regulations. The following requirements come into effect after the following dates:

1. After January 1, 1974, § 91.24(a) prohibits installation of a transponder in an aircraft (not previously so equipped) unless that transponder has been shown to meet specified TSO standards. This applies only to U.S. registered civil aircraft, and thus does not apply to foreign registered aircraft or to public aircraft such as military aircraft of the United States. This installation requirement applies regardless of the airspace to be used by the aircraft. It does not involve automatic pressure altitude reporting equipment. Transponders installed on or before January 1, 1974, in any aircraft, or after that date in aircraft that were previously transponder equipped, may continue to be used, in U.S. registered civil aircraft, without meeting TSO standards, through July 1, 1975.

2. After July 1, 1974, § 91.24(b) requires that aircraft operating in Group I Terminal Control Areas be equipped with Mode 3/A 4096 code transponders and associated automatic pressure altitude reporting equipment. Unlike § 91.24(a), discussed above, this applies to all aircraft operators including foreign and public aircraft, and is thus not limited to U.S. registered civil aircraft. July 1, 1974, is, therefore, the first date after which aircraft having transponders that do not have both 4096 codes and compatibility with an encoder (that must also meet § 91.36 under the current regulations) are excluded from operation in Group I TCAs (subject to the exceptions and deviation authority in

the regulations), regardless of the date of installation of the transponder in the aircraft. Transponders meeting the specified TSO standards will be in compliance with the transponder aspect of this requirement for Group I TCAs.

3. After January 1, 1975, § 91.24(b) requires that all aircraft, including foreign aircraft and public aircraft as well as U.S. registered civil aircraft, be equipped with a transponder having Mode 3/A 4096 code capability and automatic pressure altitude reporting equipment in order to operate in Group II Terminal Control Areas and Group III Terminal Control Areas (when they are established, and subject to the exceptions and deviation authority in the regulations). Transponders meeting the TSO standards, discussed above, will meet the transponder aspects of this requirement. Transponders not meeting the TSO standards but still having Mode 3/A 4096 code capability (and compatibility with an encoder that must also meet § 91.36) may be used in compliance with this requirement (through July 1, 1975, as discussed below). Regardless of whether the TSO standards are met, the aircraft must, after January 1, 1975, have automatic airborne altitude reporting equipment to operate in Group II and Group III TCAs (subject to the exceptions and deviation authority in the regulations). This affects all operators. January 1, 1975, is thus the first date after which aircraft having transponders that do not have both 4096 codes and compatibility with an encoder (that must also meet § 91.36) are excluded from operation in Group II and Group III TCAs (subject to the exceptions and deviation authority in the regulations), regardless of the date of installation of the transponder in the aircraft. Transponders meeting the specified TSO standards will be in compliance with the transponder aspect of this requirement for Group I Iand Group III TCAs.

4. After July 1, 1975, two new requirements come into effect. The first is the requirement in § 91.24(a) that any transponder used in any U.S. airspace must have been shown to meet TSO standards regardless of the date of installation of the transponder. After that date transponders not shown to be in compliance need not be removed from the aircraft but may not be used, in any U.S. airspace, regardless of installation date. This regulation affects U.S. registered civil aircraft only. It does not require automatic pressure altitude reporting equipment. The second requirement effective after July 1, 1975, is the requirement in § 91.24(b) that Mode 3/A 4096 code transponders and automatic airborn altitude reporting equipment be used in all controlled airspace of the 48 States and the District of Columbia, above 12,500 feet MSL (and above 2,500 feet AGL). U.S. registered civil aircraft must comply with the transponder aspect of this operating requirement by showing compliance with TSO standards (under § 91.24(a)), while foreign and public aircraft would comply if equipped with any Mode 3/A 4096 code transponder having compatibility with an encoder (that must also meet § 91.36).

IV. *General comments concerning costs and benefits of improved transponders and associated automatic pressure altitude reporting equipment.*

Numerous comments of a general nature were received stating that the cost of the proposed rule changes could not be justified by the benefits therefrom. These general comments stated that requiring improved transponders and associated automatic pressure altitude reporting equipment in the specified airspace goes beyond the point of diminishing returns, is not justified by near midair collision statistics, conflicts unnecessarily with the FAA's statutory duty to encourage the development of aviation, and will be unnecessarily damaging to the less sophisticated segments of general aviation that now use positive control airspace, all without a corresponding significant benefit to air traffic control system safety or efficiency. While certain of these comments conceded that automatic altitude reporting had some value in heavily used airspace around airports, nearly all of these comments stated that the traffic volume in en route airspace, particularly in the western part of the United States, is far less than that needed to justify the required use of such equipment by all users of that airspace.

In response to these general comments, it is noted that significant relaxations have been made in these amendments when compared with those proposed in Supplemetnal Notice 72-12. After considerable study, the FAA believes that the air traffic control safety and efficiency benefits from these amendments, as changed from the Notice, outweigh the costs on affected users, that these benefits will become far greater if projected air traffic growth rates are reasonably accurate, while at the same time the costs of compliance will decrease as manufacturers respond to the need for the new equipment.

It is also probable that the overall costs paid by all airspace user for further delay in setting in motion the regulatory basis for altitude reporting capability will exceed the costs of acting now to anticipate, rather than react to, the results of increasing traffic demands. In short, it is believed that the compliance times specified herein are reasonable, and that nearly all persons who opposed the scope and timing of the regulations proposed in Notice 72-12 would be even less satisfied with solutions made necessary by further delay in implementing the amendments issued herein.

V. *Specific requests for relaxation of Notice 72-12.*

Several requests for relaxation of Notice 72-12 were received. These included the following specific arguments:

1. The compliance times are too restrictive and should be relaxed. The FAA agrees in part and has set back the compliance date for Group I Terminal Control Areas from January 1, 1974, to July 1, 1974, has delayed the compliance date for Group II Terminal Control Areas from January 1, 1974, to January 1, 1975, and has also extended the time for compliance in "terminal areas" (relabeled hereunder as "Group III Terminal Control Areas" as further discussed below) from January 1, 1974, to January 1, 1975. However, the FAA does not believe that such extension is needed with respect to the date for other controlled airspace. The date for such airspace remains as proposed (July 1, 1975). In establishing the compliance dates in this amendment, the FAA has had extensive consultation, not only with aircraft operators but also with manufacturers and suppliers of the required new equipment. Industry ability to meet the demand for equipment required by this amendment, within the compliance periods, was fully considered in addition to an analysis of the numbers of aircraft in the civil fleet that would be likely to be affected, in the different specified airspace, on the respective compliance dates.

2. The benefits of an automated air traffic control system should lead to fewer restrictions, not more. Specifically, it is argued that the benefits otherwise derived from NAS en route stage A and the automated radar terminal systems should allow controllers to handle increased traffic without the need for automatic altitude reporting transponders. It is correct that the benefits of improvements in ground based equipment should help to retard the rate at which increasing restrictions are placed on aircraft not having the improved transponder and associated automatic pressure altitude reporting equipment. However, automated ground equipment is not viewed as a substitute for automatic airborne equipment in the airspace covered by this amendment, in view of the current and projected air traffic control workload in such airspace. Because of this traffic density, and as stated in Notices 69-9 and 72-12, the implementation of an automatic pressure altitude reporting requirement provides the following benefits to the ATC system: improved ATC system safety by automatically displaying the altitude of all aircraft operating in selected airspace; reduced midair collision potential through eliminating previously unknown integral data; reduced volume of communication by eliminating the need for oral altitude reports; improved utilization of airspace through continuous altitude data on climbing and descending aircraft; increased effectiveness through greater controller selectivity in viewing targets; and reduced number of traffic advisories or avoidance vectors during the provision of radar service.

3. The requirement for 12-hours' advance notice for operation without an improved transponder and automatic altitude reporting equipment is an unnecessary burden, particularly in view of the benefits to the system safety and efficiency from improvements in ground equipment aided by the use of automatic altitude reporting by other aircraft. The FAA has reconsidered this aspect of the proposed regulations and agrees that the advanced notice provision can be reduced to four hours. This will benefit pilots since proposed arrival and departure times can be estimated more accurately, and will permit ATC to make a more realistic assessment of the traffic expected at the proposed time of operation. Weather, staffing, and related factors are more predictable four hours in advance than they would be if a 12-hour advance notice period were required. The FAA does not believe that the requirement for some advance notice should be eliminated. Without advance notice, controllers would be required to approve or deny entrance to specified airspace on a moment's notice. It is believed that this would lead to excessive communication and additional workload to the detriment of ATC services available to transponder equipped aircraft. The FAA points out that the four-

hour provision is significantly less restrictive than the four-day advance notice required under § 91.97(b) for operation in a positive control area by nonconforming aircraft and that, for the first time, a deviation authority is provided for terminal control areas. It should be noted, however, that the deviation authority in § 91.24(c) applies only to the provisions of § 91.24(b) concerning the need for Mode 3/A 4096 code transponders and associated automatic pressure altitude reporting equipment in the specified airspace. The deviation authority does not apply to the prohibition in § 91.24(a) against the use of transponders that do not meet TSO standards, in any airspace, and does not apply to the installation of nonconforming transponders. Thus, while ATC may permit an aircraft with a malfunctioning transponder or with no transponder to operate in the specified airspace, ATC may not permit the use in that airspace (or in any other airspace) of a transponder in a U.S. registered civil aircraft that has not been shown to meet TSO standards as prescribed in § 91.24(a) after the dates specified in that paragraph.

4. En route airspace does not require automatic pressure altitude reporting equipment for all aircraft because (a) altitude changes are less frequent than in terminal airspace, and (b) en route communications are less congested than terminal airspace, so that there is sufficient time for verbal altitude reporting. Leaving aside the question of which precise threshold altitude to select (see discussion below), the FAA does not agree with the comment with respect to en route airspace at altitudes used by high performance aircraft. This is due to the combined effect of three factors: The high closure rates now possible at these en route altitudes, the projected increases of traffic at these altitudes, and the resulting decreased acceptability of reliance on verbal altitude reporting as the only source of altitude information at these altitudes.

5. The proposed en route altitude floor for automatic pressure altitude reporting equipment (12,500 feet MSL and 1,500 feet AGL) should be raised. The comments included specific recommendations as to altitude floor, and included the request that the requirement be restricted to air carrier aircraft. The comments also stressed the restrictive effect of the proposed altitude on operations in mountainous areas. The FAA believes that the proposed floor is justified by the traffic separation problems of high performance en route traffic and should not be raised. However, the particular difficulty posed on mountain routes is recognized. This amendment accordingly raises the 1,500-foot AGL floor to 2,500 feet AGL. In a related comment, it was suggested that the words "at or above" 12,500 feet be changed to "above" 12,500 feet so as to free the 12,500-foot westbound VFR cruising altitude from the transponder requirement and make the transponder requirement consistent with the oxygen requirement in § 91.32(a)(1). The FAA agrees with this comment and has incorporated this change in § 91.24(b) and (b)(4).

6. This amendment, like the current regulation (§ 91.90), should not apply, within terminal control areas, to IFR flights operating to or from a secondary airport in the TCA, or to IFR flights operating to or from an airport outside, but close to, the TCA when the commonly used procedures for that airport require flight in the TCA. The FAA does not believe that the current and projected air traffic control problems in terminal control areas justify continuing these two blanket exceptions. However, where air traffic control can be safely and efficiently exercised without automatic pressure altitude reporting equipment, or without a transponder, deviations may be issued on an individual or continuing basis. The FAA believes that this provides the most flexible and equitable means of balancing the continuing need for aircraft utility at minimum expense to airspace users against the need for assuring continued air traffic control safety and efficiency under increasing ATC workloads.

7. The requirement for an ATC authorization prior to entry into a Group I or Group II Terminal Control Area makes automatic altitude reporting unnecessary. The FAA disagrees with this comment as applied to Group I and Group II Terminal Control Areas. While obtaining a prior authorization involves communication that may advise ATC of an aircraft's altitude when it enters the TCA, it does not continuously advise ATC of the altitude of aircraft within the TCA. For this latter purpose, verbal altitude reporting is not considered acceptable as the sole means of conveying altitude information in Group I and Group II TCAs.

8. The en route requirement for a transponder between 12,500 feet MSL and the floor of the positive control area would virtually eliminate certain glider operations vital

to the science, sport, and art of soaring, and would drastically limit the altitude available for safe motorless flight over hostile terrain. Further, it is argued that the extremely variable nature of the meteorological conditions needed to support en route soaring operations makes it highly impracticable to require the advance granting of a deviation. The FAA agrees with these comments, and has also determined that glider operation, at the affected en route altitudes, is still infrequent enough not to present a significant collision hazard. On balance, it is believed that gliders operating between 12,500 feet MSL and 18,000 feet MSL (the floor of the positive control area) may safely be excepted from these amendments. However, gliders, like other aircraft, are still subject to the requirements to obtain a deviation under § 91.97(b) for operation without a transponder in the positive control area.

9. The en route operation of balloons should be excepted from this amendment. The FAA disagrees. Considering the fact that balloons, unlike gliders, have positive and predictable altitude control, and can, therefore, plan in advance the altitude of their en route operations, and considering the fact that balloons, while highly visible themselves, cannot take rapid action to avoid other aircraft in conditions of limited visibility, the FAA believes that it is reasonable not to except balloons as a class but rather to treat each case under the deviation provisions of § 91.24(c). This comment is, therefore, not accepted.

10. The current exception for helicopters should be retained. The FAA agrees to the extent that helicopters are excepted from these amendments when operating below 1,000 feet AGL in Terminal Control Areas under a letter of agreement.

VI. *Comments concerning the safety of the proposed regulations.*

Public comments were received concerning the safety implications of the proposals in Supplemental Notice 72-12. These included the following:

1. The provisions of Notice 72-12 significantly reduced the potential safety enhancement in the more restrictive proposals in Notice 69-9 and the terms of that earlier notice should be the goal to be achieved. The FAA believes that the amendments contained herein are fully sufficient to meet current safety requirements and that further restrictions are not justified at this time.

2. The proposed regulations will decrease safety during poor weather conditions by denying superior airport facilities to general aviation aircraft that are not equipped as required. The FAA disagrees. This amendment does not eliminate the emergency authority in §§ 91.3 and 91.75. Operation under deviations issued pursuant to § 91.24(c) is also provided for.

3. Use of airborne automatic pressure altitude reporting equipment by all aircraft would (i) induce a "false sense of security" in the pilot; (ii) cause unacceptable confusion on radar scopes; and (iii) by adding to pilot workload, reduce his ability to see and avoid other aircraft. None of these contentions is correct. The quality of the transponder signals as they affect ground radar scopes is assured by the recent amendment making Technical Standard Order standards apply to this equipment. By freeing the pilot from verbal altitude reporting where possible, this amendment will, in fact, increase his ability to see and avoid other traffic. At the same time, the pilot will have the benefit of traffic advisories that have been screened for altitude. This will eliminate many unnecessary advisories.

VII. *Comments suggesting alternatives.*

Public comments were received concerning alternatives to the proposed regulations. These included the following:

1. Rather than require an altitude reporting transponder, FAA should encourage VFR pilots to request radar advisories and require controllers to honor the request. This comment indicates a fundamental misconception of the reason for this amendment. Automatic pressure altitude reporting equipment is not a substitute for ATC functions such as the issuing of traffic advisories. The value of continuous automatic pressure altitude reporting lies in its ability to make ATC services and functoins more effective to the pilot.

2. Terminal air traffic should be regulated by ingress and egress corridors, required reporting points, and other means before "jumping to sophisticated equipment for all airspace users." The FAA believes that the ingress and egress corridors, even if adopted,

would not respond to the need that resulted in this amendment. This is the need for continuous, accurate, current altitude information under dense traffic conditions. This workload is just as likely to occur in the case of traffic in densely travelled corridors as well as in the case of traffic elsewhere in terminal airspace. Corridors are an appropriate consideration in the configuring of airspace for overall traffic flow purposes, but they do not solve the problem of air traffic management addressed by this amendment.

3. The FAA should wait until the aviation industry, on its own, develops reasonably priced transponder and automatic pressure altitude reporting equipment. The FAA believes that the aviation industry has the capability of responding within the deadlines prescribed, and that the effect of delayed rule making will be indefinite, and in the long run more costly, delay in anticipating and meeting the demands of projected air traffic growth.

4. There should not be a mandatory requirement for automatic pressure altitude reporting equipment "before the system can demonstrate its ability to perform well without it." This comment implies a policy of risking deterioration in the system before requiring the improved equipment. Such a policy is not an acceptable approach to anticipating and preventing impediments to the continued improvement of the air traffic control system that is needed to meet the demands of increasing numbers of users of the airspace.

VIII. *Miscellaneous comments.*

The following comments were received on issues not treated above:

1. The name "terminal area" as proposed in Notice 72-12 is confusing, needs clarification, is not clearly distinct from the concept of a TCA, and is hard to distinguish from the "airport traffic area" concept. The FAA agrees with these comments and believes that there is no significant benefit to the introduction of still another regulatory term (in addition to "airport traffic area," "control zone," and "terminal control area") to describe the airspace around an airport. For this reason, the term "Group III Terminal Control Area" is adopted, in place of "terminal area." No increased regulatory burden results from this name change. To ensure that there is no inadvertent increased burden from this name change, the designation terminology of "terminal control area" in § 71.12 is amended to make it clear that equipment rules alone (that is, without operating rules and piloting rules) may be issued in terminal control areas. That section is also editorially changed to include Group III Terminal Control Areas. Further ensuring that no regulatory requirement is added as a result of this name change is the fact that this amendment permits aircraft not equipped with improved transponder equipment to operate in these areas if two-way radio communications are maintained in the TCA and the pilot provides position, altitude, and proposed flight path prior to entering the TCA.

2. The FAA should note that no TSO is proposed for the altitude encoder itself. The FAA appreciates this comment and believes there may be a need for additional rule making to further control the quality of automatic pressure altitude reporting equipment used in compliance with this amendment. However, it should be noted that the requirements of § 91.36 covering data correspondence between automatically reported pressure altitude data and the pilot's altitude reference continue to apply.

Authority: Sections 307, 313(a), and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354, and 1421); Section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, Parts 71 and 91 of the Federal Aviation Regulations are amended, effective July 20, 1973.

Amendment 91–117

Carriage of Narcotic Drugs, Marihuana, and Depressant or Stimulant Drugs or Substances

Adopted: June 19, 1973 **Effective: August 1, 1973**

(Published in 38 F.R. 17491, July 2, 1973)

The purpose of these amendments to Part 91 of the Federal Aviation Regulations is to make the current prohibition in § 91.12(a) against the carriage in civil aircraft of narcotic drugs, marihuana, and depressant or stimulant drugs or substances between Mexico and the United States apply to the operation of civil aircraft anywhere within the United States. These amendments also make a violation of § 91.12(a), as well as a conviction for violating any Federal or State statute relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marihuana, and depressant or stimulant drugs or substances, a basis for denying applications for airmen certificates issued under Parts 61, 63, and 65 and a basis for suspending or revoking those certificates. In addition, a violation of § 91.12(a) is made the basis for suspending or revoking the operating certificate authority issued under Part 133 (rotorcraft external-load operations), Part 137 (agricultural aircraft operations), and Part 141 (pilot schools). Finally, this amendment to Part 91 (§ 91.84) requires an appropriate flight plan to be filed for the flight of civil aircraft between Mexico or Canada and the United States, unless otherwise authorized by ATC.

These amendments are based on a Notice of Proposed Rule Making (Notice 72-16) published in the Federal Register on July 4, 1972 (37 F.R. 13189).

A number of comments received in response to Notice 72-16 expressed opposition to regulation by the FAA in the area of narcotics control and appeared to question their justification. As explained in the preamble to the Notice, the current provisions of § 91.12(a) were adopted in 1969 (34 F.R. 13922) in recognition of the increasing hazard to safety in air commerce resulting from the increased use of civil aircraft for the illicit carriage of narcotics and other drugs into the United States. These hazards result from attempts to avoid detection or pursuit through violent maneuvers, low flying, flight in bad weather, and use of unsafe landing areas. Since 1969, information available to the FAA indicates that the illicit carriage of drugs by aircraft is occurring in various places within the United States, in violation of State as well as Federal statutes. Accordingly, in the interest of safety, this amendment extends the applicability of the current prohibition in § 91.12(a) to include the operation of civil aircraft anywhere within the United States with knowledge that narcotic drugs, marihuana, and depressant or stimulant drugs or substances as defined in Federal or State statutes are carried in the aircraft.

The current provisions of §§ 61.6 (§ 61.15 as of November 1, 1973) and 63.12, which were adopted in 1969 (34 F.R. 13922), make a violation of any Federal statute governing illegal activities involving narcotic drugs, marihuana, and depressant or stimulant drugs or substances, or a violation of § 91.12(a), a basis for denying applications for airmen certificates issued under Parts 61 and 63, and for suspending and revoking those certificates. This amendment expands those current provisions of §§ 61.6 and 63.12 to also encompass violations of State statutes governing such illegal activities. In addition, the amendment adds identical provisions to § 65.12 of Part 65, which governs the issuance of airman certificates to air traffic control-tower operators, aircraft dispatchers, mechanics, repairmen, and parachute riggers. As explained in the Notice, the FAA is adopting these amendments to Parts 61, 63, and 65 because it believes a demonstrated willingness to violate Federal or State statutory provisions governing the illegal activities specified, or a demonstrated willingness to violate § 91.12(a), clearly demonstrates a tendency to act without inhibition in an unstable manner and without regard to the rights of others, and clearly demonstrates that the applicant for a certificate would not be compliance minded regarding the many requirements necessary for safety in air commerce or air transportation.

The FAA also adopted in 1969 (34 F.R. 13922) amendments to Parts 121, 123, 127, and 135 which currently provide for the suspension or revocation of an operating certificate issued under those parts if the certificate holder permits any aircraft owned or operated by him to be engaged in any operation he knows to be in violation of § 91.12(a). This amendment adds the same provisions for certificate suspension or revocation to Parts 133, 137, and 141. As stated in the Notice, the rationale for these provisions is the FAA belief that the privileges inherent in those operating certificates can directly support, or even be essential to, the use of aircraft in smuggling narcotic drugs, marihuana, and depressant or stimulant drugs or substances. This is considered to be true regardless of whether the aircraft is being operated under the certificate at the time, since the corporate financial and management strength necessary to operate such aircraft largely flows from the operating certificates. As in the case of airman certificates, operating certificates can have the effect of providing a condition necessary to the use of the aircraft, by any person, in the hazardous business of smuggling. Furthermore, for the same reasons that support actions against airman certificates, the risk-taking willingness of the corporate or individual management of the holders of those operating certificates would clearly negate their ability to adhere to the conditions necessary for safety in air commerce or air transportation. The FAA considers this to be true, regardless of whether that risk-taking occurs by the certificate holder leasing the aircraft to other persons who smuggle the illegal items or by their operating the aircraft themselves in that business.

In addition to the foregoing, the justification for these amendments encompasses the equally important public interest factors that are directly opposed to the continued use of airman and operating certificates to support the aerial smuggling of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

As proposed, this amendment prescribes a new § 91.84 which requires persons operating civil aircraft on a flight between Mexico or Canada and the United States to file a VFR or IFR flight plan, as appropriate, unless otherwise authorized by ATC. In adopting this amendment the FAA considered the fact that Part 99 already requires a flight plan to be filed for flights between other countries and the United States and is of the opinion that the flight plan requirement will further assist the agency in conducting an effective safety enforcement program.

These amendments are issued under the authority of sections 307(c), 313(a), 601, 602, 604, and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c), 1354(a), 1421, 1422, 1424, and 1427), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, Parts 61, 63, 65, 91, 133, 137, and 141 of the Federal Aviation Regulations are amended, effective August 1, 1973.

Amendment 91–118

Large and Turbine-Powered Multiengine Airplanes: Charges for Certain Operations

Adopted: July 9, 1973 **Effective: August 16, 1973**

(Published in 38 F.R. 19024, July 17, 1973)

The purpose of these amendments to Subpart D of Part 91 of the Federal Aviation Regulations is to clarify and more specifically prescribe those items that may be charged under § 91.181.

Interested persons have been afforded an opportunity to participate in the making of this amendment by a Notice of Proposed Rule Making (Notice 72-28) issued on October 20, 1972, and published in the Federal Register on October 25, 1972 (37 F.R. 22798). Due consideration has been given to all comments presented in response to the Notice. Except for minor editorial changes, and except as specifically discussed hereinafter, these amendments and the reasons therefor are the same as those in Notice 72-28.

The FAA received over 35 comments in response to Notice 72-28. All but one favored adoption of the proposed amendments to Subpart D of Part 91. However, most of the commentators favoring adoption recommended that the list of permissible charges in proposed § 91.181(d) be changed so as to specifically permit charging for expenses that could be attributed to a particular flight, although they are not incurred as a direct result of that flight in that they are incurred irrespective of whether or not the flight is conducted. Such expenses include (1) salaries of flight crews employed by the aircraft operator, (2) aircraft depreciation, (3) insurance premiums (hull and liability), (4) crew training costs, and (5) maintenance costs. In this regard, a number of means were suggested by commentators whereby these expenses could be recovered as charges for a particular flight.

With respect to the proposal in the Notice that a charge equal to 100 percent of the cost of the fuel for the flight be allowed instead of a specific computation of these expenses, a number of commentators contended that such a provision would not, in many cases, permit recovery of all of the expenses resulting from the operation of the aircraft. However, the FAA believes, based on the information available to it, that the allowance of such a charge would provide for the recovery by the operator of an amount that would reasonably approximate expenses not incurred as a direct result of a particular flight, but appropriately attributed thereto. This would, at the same time, relieve the FAA of the administrative burden of verifying in detail the various methods used by operators to compute those expenses, in order to ensure that a profit is not made. Accordingly, § 91.181(d)(10), as adopted, allows an additional charge equal to 100 percent of the expenses listed in § 91.181(d)(1), and does not provide for authorization by the Administrator of any other charge.

It should be noted that, although the FAA does not foresee compliance with § 91.181 (d) causing an unreasonable burden on any operator, individual operators who believe that the uniqueness of their particular situation justifies a specific charge not provided for in subparagraph (d) may, of course, petition for an appropriate exemption in accordance with the procedures contained in Part 11.

The National Air Transportation Conference, Inc., in its comment on the Notice, suggested that the word "registered" be inserted before the word "owners" in proposed § 91.181(c)(3), in order to prevent abuse of this provision through attempts to conceal the sale of air transportation under the guise of temporary ownership of an aircraft. The FAA agrees with this comment. Section 47.3(b)(1) provides that no person may operate an aircraft that is eligible for registration under section 501 of the Federal Aviation Act of 1958, unless that aircraft has been registered by its owner. Accordingly, proposed § 91.181(c)(3), as adopted, is clarified by inserting the word "registered" before the words "joint owners" wherever they appear.

(Sections 313(a) and 601 of the Federal Aviation Act of 1958; 49 U.S.C. 1354(a) and 1421. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c).)

In consideration of the foregoing, and for the reasons given in Notice 72-28, Part 91 of the Federal Aviation Regulations is amended, effective August 16, 1973.

Amendment 91–116

ATC Transponder Requirements

CORRECTION

Adopted: August 31, 1973 **Effective: July 20, 1973**

(Published in 38 F.R. 24893, September 11, 1973)

Amendment 91-116, issued on May 25, 1973, and published in the Federal Register on June 4, 1973 (38 F.R. 14672) added several changes, to Part 91 of the Federal Aviation Regulations, affecting the use of ATC transponder equipment in U.S. airspace. One of these changes amended § 91.90(b) to add requirements that become effective after January 1, 1975. However, in reorganizing § 91.90(b)(2)(iii), there was an inadvertant omission of one provision of the regulation that is currently effective, that will remain effective until January 1, 1975, and for which no change was proposed in the Notice or intended in the amendment. The omitted provision stated that the currently effective requirement does not apply to "IFR flight operating to or from a secondary airport located within the terminal control area," or to IFR flights operating to or from an airport outside of the terminal control area "but which is in close proximity to the terminal control area."

Accordingly, § 91.90(b)(2)(iii) is corrected.

Amendment 91–119

ATC Transponder Tests and Inspections

Adopted: December 19, 1973 **Effective: December 31, 1973**

(Published in 38 F.R. 35441, December 28, 1973)

The purpose of these amendments is to modify the test and inspection requirements of § 91.177 and Appendix F of Part 43 of the Federal Aviation Regulations.

These amendments are based upon Amendments 43-17 and 91-107, published in the Federal Register on December 27, 1972 (37 F.R. 28495). The regulations concerning test and inspection requirements for transponders were adopted as additions to the amendments establishing standards for Airborne ATC Transponder Equipment arising from a Notice of Proposed Rule Making (Notice 71-10) issued on March 22, 1971, and published in the Federal Register on March 30, 1971 (36 F.R. 5853). Since the test and inspection regulations were adopted without prior notice, comments were solicited until March 27, 1973, to determine the need for further amendments to the regulations. Numerous comments have been received in response to this request and except for those indicating agreement with the present regulations, the disposition of the comments is discussed hereinafter.

Many of the commentators expressed the opinion that yearly tests and inspections are unnecessary because they believe that Air Traffic Control (ATC) is continuously providing inspection for their transponders during the normal interrogation and reply. They believed that the radar controller can determine and communicate to the pilot when a transponder needs calibration so that if no objection or comment is received from the controller the pilot can assume the transponder is functioning satisfactorily.

The FAA does not agree with the contention that the ATC can determine the calibration or proper functioning of a transponder. In the past, when air traffic control procedures were performed manually and during periods of low air traffic density, it was possible for air traffic controllers to assist in performing checks on transponder performance. Today, however, the automatic system utilizes computer equipment which either accepts or rejects transponder replies without any communication with the pilot. Thus, to ensure proper operation of transponders, it has become necessary to require independent checks of transponder signals.

Not only may the controller be unaware that a particular transponder is not performing within specification, since the signal may be rejected by the ARTS computer as being invalid, but, if the transponder operation has improper side lobe suppression it may generate extraneous replies which garble other transponder signals and prevent the computer from presenting to the controller valid data from properly operating transponders. Subtle degradation in transponder performance and certain other transponder malfunctions are not detectable by controllers under even the most favorable circumstances.

Many respondents also objected to the yearly tests as being counterproductive. They believed that the technical complexity of the tests would require removal and reinstallation of the transponder with the possibility that the transponder could be damaged. Several commentators also questioned the reliability of some repair stations. It was further pointed out by many commentators that the relationship between the current number of installed transponders (more than 60,000) to the number of repair stations presently able to perform transponder maintenance (523) would create a situation which would prevent an orderly schedule for the required inspections and tests. One commentator pointed out that, if the specific deviations shown in the 504 transponders tested by Lincoln Laboratory and reported in FAA Report No. FAA RD-72-30 are representative of the transponders presently in use, then over 60,000 deviations from specifications would be encountered in the first annual test. Several of the commenators suggested that, to avoid the anticipated overload on the repair facilities, the inspections and tests be conducted every two years instead of every year.

Based on these comments and on further review, the FAA has determined that the compliance date in § 91.77 should be extended from January 1, 1974, to January 1, 1976. This will provide lead time for new repair stations to obtain the necessary certification to perform the tests. In response to further comments, the rule is also amended to expand the time interval for the periodic tests and inspections of transponders from every year to every two years in order to allow complete Mode C checkout during altimeter checks.

Many of the commentators, concerned that it would be necessary to remove the transponder from the aircraft to accomplish the tests, argued that the removal and reinstallation time and cost would be burdensome and that there would be a chance of damage to a previously operating transponder. They were also concerned with the impracticality of measuring the transponder transmitter power output at the end of the transmission line. They believed this test would require additional costs because of the difficult accessibility of these lines in some installations.

The purpose of the tests and inspections is to ensure the use of properly operating transponders in the National Airspace System, and the FAA believes after further consideration that the use of portable ramp test sets would allow adequate testing of the installed transponder. Presently available portable test equipment would not allow testing of all the parameters presently specified in Appendix F of Part 43. However, after further consideration of the parameters presenty specified, the FAA has determined that adequate testing of the transponders can be accomplished in the aircraft without conducting the tests for reply transmission characteristics, framing pulse, reply codes, reply pulse width, and transmitter power output. These tests, set forth in paragraphs (b), (c), (d), and (g) of Appendix F to Part 43, have, therefore, been deleted.

One commentator suggested that the interrogation rate for the suppression test be specified. The FAA agrees and has amended the suppression test to specify an interrogation rate of 235 per second with replies not to exceed 3 per second when P_2 equals P_1. This nominal pulse repetition rate of 235 will eliminate the interference caused by maintenance testitng of transponders when the pulse repetition rate of the test signal is equal to or harmonically related to the pulse repetition rate of the ATC radar. In addition, the response has been changed to 211 replies per second when the amplitude of the P_2 pulse is 9db less than the P_1 pulse. The response rate is reduced from the previous rate of 450 per second to prevent harmful interference and reduce congestion on the ATC radar.

The requirement of −73±4bm for receiver sensitivity remains unchanged. However, an additional 3dbm tolerance is allowed to compensate for coupling errors associated with portable test equipment. In addition, consistent with the use of portable test equipment, an option is provided in testing for receiver sensitivity to allow measurements by radiated signal testing or by direct connection at either end of the antenna transmission line.

The FAA does not agree with several commentators who contended that the tests would serve no useful purpose since a transponder could fail on the next flight or next day after an inspection. In the tests performed by the Lincoln Laboratory, 31 of the 549 transponders were inoperative and a significant number of the transponders failed to meet some of the parameters tested. More significantly, however, the operators appeared to be unaware that their transponders were not functioning properly. The FAA believes that this indicates that a significant number of transponder deficiencies are related to a lack of maintenance and a gradual degradation of transponder performance which might not be readily discerne in normal operation. The FAA therefore believes that periodic tests are necessary to assure adequate operation for use in the National Airspace System.

Several commentators believed that since their transponders were TSO'd future testing would be unnecessary. However, the TSO specifications and the operational specifications, although complementary, are not the same. As with any electronic device whether solid state or not, performance may deteriorate and may be subtle and not readily discernible. Therefore, the operational testing specified in § 91.177 is necessary for continued integrity of the system.

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all matter presented.

Since these amendments relieve a restriction and extend a compliance date and do not impose an additional burden on affected persons, good cause exists for making them effective in less than 30 days.

These amendments are made under the authority of sections 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, Parts 43 and 91 of the Federal Aviation Regulations ar amended as follows, effective December 31, 1973.

Amendment 91-120

Registration Number on Airworthiness Certificate

Adopted: December 26, 1973 **Effective: February 7, 1974**

(Published in 39 F.R. 1352, January 8, 1974)

The purpose of this amendment to Parts 47 and 91 of the Federal Aviation Regulations is to require that a U.S. airworthiness certificate (except certain special flight permits) carried on an aircraft have on it the registration number of the aircraft, except that the airworthiness certificate need not have on it an assigned special identification number before 10 days after that number is first affixed to the aircraft.

This amendment is based on a Notice of Proposed Rule Making (Notice No. 72-31) issued on November 22, 1972, and published in the Federal Register on December 1, 1972 (37 F.R. 25532). Several comments were received in response to Notice No. 72-31 and the relevant comments are discussed below. Based upon these comments and upon further consideration by the FAA, several changes have been made to the proposed rule. Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all relevant matter presented.

Four of the six comments received in response to Notice No. 72-31 were in favor of, or raised no objection to, the amendment as proposed. One of the commentators in favor of the proposal questioned whether under the proposal the aircraft owner would be permitted to make the change to the airworthiness certificate after a change in registration number. The commentator also questioned the effect of the cancellation of an aircraft's registration, for any of the reasons specified in Part 47, on the aircraft's airworthiness certificate, and whether the added airworthiness documentation, that would be required under the proposal, would impede title searches.

With respect to the commentator's first question, § 21.177 provides that an airworthiness certificate may be amended or modified only upon application to the Administrator. Therefore, under the proposal, after obtaining a new registration number, the aircraft owner would not be permitted to revise the aircraft's airworthiness certificate, but would be required to obtain a revised airworthiness certificate, showing the new registration number, from an FAA Flight Standards District Office. In order to avoid any misunderstanding as to who may revise an airworthiness certificate, the last sentence of § 47.15(f), that contains nonregulatory material, has been deleted and a sentence has been added at the end of § 91.27(a)(1) to make it clear that a revised airworthiness certificate having on it a special identification number, that has been assigned and affixed, must be obtained upon application to an FAA Flight Standards District Office. With respect to the commentator's second question, § 21.181 specifies the duration of airworthiness certificates and § 21.181(a)(1) provides, in pertinent part, that a standard airworthiness certificate is effective (unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator) so long as the aircraft is registered in the United States. Finally, in that the provision merely requires what has generally been done voluntarily in the past, the FAA foresees no added impediment in searches for title.

The Notice proposed to permit operations of an aircraft for a 10-day period, after a special identification number is first affixed to an aircraft, during which the operator could obtain a revised airworthiness certificate showing that special identification number. One commentator, while in favor of a requirement that the aircraft registration number be on the airworthiness certificate, contended that the 10-day period provided was insufficient and that 30 days would be necessary. The FAA does not believe this comment has merit since the owner of the aircraft can schedule the affixing of the special identification number to a time in which 10 days should be sufficient to obtain a revised airworthiness certificate.

One commentator asserted that the proposal would require added unnecessary paperwork. The FAA does not agree. As stated in Notice 72-31, the U.S. registration number of an aircraft is shown on the U.S. airworthiness certificate (except certain special flight permits), and a requirement that the current registration number appear on the airworthiness certificate would reduce the possibility of confusion with respect to an aircraft's identification without placing an undue burden on the aircraft operator.

Finally, the proposal has been editorially revised to make it clear that while a special flight permit is an airworthiness certificate, as revised, § 91.27(a)(1) will not require that a special flight permit have on it the aircraft's registration number.

This amendment is made under the authority of sections 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1421, and 1423), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, and for the reasons given in Notice 72-31, Parts 47 and 91 of the Federal Aviation Regulations are amended, effective February 7, 1974.

Amendment 91-121

Emergency Locator Transmitters

Adopted: February 5, 1974 **Effective: February 20, 1974**

(Published in 39 F.R. 6516, February 20, 1974)

The purpose of this amendment to § 91.52(a)(2) of the Federal Aviation Regulations is to extend the compliance date for carrying an emergency locator transmitter (ELT) on most types of general aviation airplanes.

Section 91.52(a)(2) currently specifies December 30, 1973, as the date for compliance. However, on January 2, 1974, an amendment to section 610(d) of the Federal Aviation Act of 1958 (P.L. 93-239) became effective which extended the compliance date for ELT equipment until June 30, 1974.

Since this amendment is necessary to make a regulatory compliance date consistent with a statutory requirement, grants relief, and imposes no additional burden on any person, I find that notice and public procedure hereon are unnecessary and that good cause exists for making this amendment effective on less than 30 days notice.

(Sections 313(a), 601, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1424); and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, § 91.52(a)(2) of the Federal Aviation Regulations is amended, February 20, 1974, by deleting the phrase "December 30, 1973," and substituting the phrase "June 30, 1974," therefor.

Amendment 91-122

VOR Equipment Check for IFR Operations

Adopted: May 21, 1974 **Effective: July 1, 1974**

(Published in 39 F.R. 19203, May 31, 1974)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to permit VOR maintenance test signals radiated by FAA certificated and appropriately rated radio repair stations to be used in performing the VOR equipment checks required by § 91.25.

This amendment is based on a Notice of Proposed Rule Making (Notice No. 72-26) issued on September 25, 1972, and published in the Federal Register on September 30, 1972 (37 F.R. 20573). Numerous comments were received in response to Notice 72-26 and the relevant comments are discussed below. Based on the comments received and upon further consideration by the FAA, several changes have been made to the proposal.

Interested persons have been afforded an opportunity to participate in the making of this amendment, and due consideration has been given to all relevant matter presented. Except as modified by the following discussion, the reasons for this amendment are those set forth in the Notice.

Twenty-eight of the 34 comments received in response to Notice 72-26, were substantially in favor of, or raised no objection to, the amendments as proposed. In addition, a number of commentators made suggestions that are not within the scope of the Notice. While those comments cannot be acted upon in this rule-making action, they are appreciated and will be retained for consideration in connection with future rule-making action.

A number of commentators pointed out that the proposal did not indicate the persons who are authorized to make the required VOR check and logbook entry, but that the preamble contained a statement to the effect that only qualified personnel of the repair station would be permitted to make that check and record entry. It was suggested that the pilot should be permitted to make both the check and record entry. The proposal was not intended to alter in any way the right of pilots under the existing rule to conduct the VOR equipment check and make the associated entry in the permanent record of the aircraft; under this amendment the pilots continue to be permitted to do so. However, regardless of who makes the equipment check and record entry, when a repair station test signal is used, the FAA believes it necessary that the repair station certify as to the bearing transmitted and the date of transmission. Upon further consideration in view of the comments received, the proposal has been revised to require this certification as an additional aircraft record entry to be made by a repair station if the station's test signal is used.

One commenator suggested that the rule be revised to provide additional test requirements. The FAA does not agree. The conditions specified in the regulations provide a reliable check of the VOR equipment and additional requirements are not necessary.

Several commentators requested that they be permitted to radiate their own test signals for use in complying with § 91.25(b)(1). However, the FAA does not believe such test signals would provide the required accuracy inasmuch as there is no means to assure that the equipment being used by the operators to radiate the signals will be calibrated correctly.

One commentator objected to the proposed amendment on the ground that the methods permitted by the current regulation for complying with the VOR equipment check requirement of § 91.25 have proven satisfactory and, therefore, merely an increase in the number of test signal facilities operated or approved by the FAA in accordance with the current regulation, and their better placement, would be a more satisfactory solution to the problem discussed in the Notice than would the proposed revision. It was asserted that the proposed revision would result in financial benefits for certain stations to the detriment of general aviation operators and that many FAA certificated repair stations would be in violation of the Federal Communications Commission (FCC) incidental radiation rules if they were to transmit test signals. The FAA does not agree. Since the presently permitted methods of checking VOR equipment have proven satisfactory, their use will continue to be permitted, and the FAA does not consider it practical to move or expand the number of test signal facilities operated by the FAA. Furthermore, the proposed amendment does not impose any additional financial burden on any person since it only provides an alternative to the other methods of compliance currently permitted by § 91.25. Finally, it does not authorize repair stations to radiate test signals that are not in compliance with FCC requirements, and, as noted in the preamble, 585 repair stations have been licensed by the FCC to radiate maintenance test signals. In this connection, one commentator requested that the Airman's Information Manual (AIM) to be revised to include a listing of those repair stations that can be used for compliance with § 91.25. Such a listing is not practicable for inclusion in AIM; however, information will be included in AIM concerning the use of repair station facilities to perform the VOR check.

Several commentators questioned the accuracy of repair station test signal generator equipment and suggested the use of repair station test signals only if dual VOR units are installed in the aircraft. The FAA does not agree. Sections 145.39 and 145.47 of Part 145 require that the equipment used by a repair station be of a type that will permit the work being performed to be done completently and efficiently, that all test equipment be tested at regular intervals to insure correct calibration, and that the repair station provide adequate personnel for the function to be performed. Those requirements, in conjunction with FAA surveillance, adequately provided for the necessary accuracy of repair station test signals.

Finally, it should be noted that all of the means that are available under the present rules to an operator to check his VOR equipment will continue to be available to him. This amendment merely increases the number of test signals he may use by including signals radiated by FAA certificated and appropriately rated radio repair stations.

This amendment is made under the authority of sections 313(a), 601, 603, and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1427), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective July 1, 1974.

Amendment 91–123

Postponement of Requirement for Improved Transponder

Adopted: June 24, 1974 **Effective: June 27, 1974**

(Published in 39 F.R. 23253, June 27, 1974)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to postpone the dates on and after which improved transponder and associated pressure altitude reporting equipment will be required for flight within Terminal Control Areas (TCA's).

Notice No. 74–17 was published in the Federal Register on April 17, 1974 (39 F.R. 13785), stating that the Federal Aviation Administration was considering an amendment to Part 91 of the Federal Aviation Regulations to postpone the effective compliance dates for operation within Terminal Control Areas by six months.

Interested persons were afforded an opportunity to participate in the proposed rule making through the submission of comments. Approximately one hundred public comments were received, which were virtually unanimous in support of the proposed postponement.

One commentator agreed with the six-month extension in Group I TCA's to January 1, 1975, but believed that the requirement for Group II and Group III TCA's should also be effective on the same date as that for Group I TCA's rather than being extended to July 1, 1975. He expressed the opinion that there was no informatoin available to indicate unforseen difficulties in meeting the equipment requirement after January 1, 1975. The information currently available to the FAA, including the most recent comments to the subject Notice 74–17, clearly indicates, however, that there is a serious equipment supply problem which would prevent meeting the present schedule.

Many of the commentators suggested that a one-year extension would be more appropriate than the six-month extension. At present, the FAA believes that a six-month extension will be adequate to permit introduction of reliable equipment into the fleet.

Since this amendment relieves a restriction it may be made effective less than 30 days after publication in the Federal Register.

[Section 307 and 313(a) of the Federal Aviation Act of 1958, 49 U.S.C. 1348, 1354(a); Section 6(c) of the Department of Transportation Act, 49 U.S.C. 1655(c)].

In consideration of the foregoing, §§ 91.24(b)(1), (b)(2), and (b)(3) of Part 91 of the Federal Aviation Regulations is amended to read as follows, effective June 27, 1974.

Amendment 91–124

Emergency Locator Transmitters

Adopted: July 2, 1974 **Effective: July 10, 1974**

(Published in 39 F.R. 25315, July 10, 1974)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to adopt the statutory exemptions contained in § 601(d)(2) of the Federal Aviation Act of 1958 as amended by Public Law 93–239 (January 2, 1974) and to incorporate these exemption provisions into § 91.52(f) of the regulations. The statutory exemptions are adopted verbatim and permit certain fixed-wing, powered civil aircraft to operate without an Emergency Locator Transmitter (ELT).

The amendment to § 91.52(f)(1) deletes the word "engine" from the current regulation and substitutes the word "aircraft" for "airplane." However, since the Act makes the ELT requirement applicable to only fixed-wing, powered aircraft, the new language creates no substantive change in the exemption. Similarly, the amendment to § 91.51 (f)(2) incorporates new language which clarifies the intent of the current exemption without substantively altering its scope. The amendment to § 91.52(f)(3) extends the geographical limit in the current exemption by permitting aircraft to be operated in training flights, without carrying an ELT, within a radius of 50 miles of the airport from which the local flight operation began.

The amended § 601(d) of the Act also adds several entirely new ELT exemptions. These exemptions are set forth in new § 91.52(f)(4), (5), (7), (8), and (9), and permit aircraft to be used in certain types of flight operations without carrying an ELT.

New § 91.52(f)(6) is similar to current § 91.52(f)(4); however, since the new section expressly exempts aircraft from the ELT requirement while engaged in flights which are incident to the aerial application of chemicals and other substances for agricultural purposes, the exemption will apply during necessary flights to and from the location of the operation. It will be noted that the applicability of exemption 91.52(f)(6) is governed by the flight operation in which the aircraft is engaged and not by the fact that it may be certificated or equipped for aerial application. For example, this exemption does not apply to "agricultural aircraft" certificated in the normal category and fitted with readily detachable spraying equipment while such aircraft are engaged in flight operations that are not incident to the aerial application of chemicals and other substances for agricultural purposes.

Since this amendment is necessary to make the Federal Aviation Regulations conform to § 601(d)(2) of the Federal Aviation Act of 1958 and imposes no additional burden on any person, I find that public notice and procedure hereon is unnecessary, and that good cause exists for making this amendment effective on less than 30 days' notice.

This amendment is issued under the authority of sections 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective July 10, 1974, by deleting subparagraphs (1) through (4) of § 91.52(f) and by adding new subparagraphs (1) through (9).

Amendment 91-125

Aircraft Speed Beneath Terminal Control Areas

Adopted: July 16, 1974 **Effective: August 23, 1974**

(Published in 39 F.R. 26888, July 24, 1974)

The purpose of this amendment is to clarify the wording of section 91.70 of the Federal Aviation Regulations which limits aircraft airspeed to 200 knots beneath a terminal control area.

On February 20, 1974, a Notice of Proposed Rule Making (Notice No. 74-6) was published in the Federal Register (39 F.R. 6538) proposing to amend Part 91 of the Federal Aviation Regulations by clarifying the rule for aircraft speed beneath a terminal control area. The Notice proposed to change the wording of § 91.70(c) from ". . . airspace beneath the lateral limits of any terminal control area . . ." to ". . . . airspace underlying a terminal control area . . ." and to specifically refer to VFR corridors as being within the scope of the rule.

Five comments were received in response to the Notice, all either concurring in the proposal or offering no objection.

Authority: [Section 307(a) and 313(a) of the Federal Aviation Act of 1958, 49 U.S.C. 1348(a) and 1354(a); and section 6(c) of the Department of Transportation Act, 49 U.S.C. 1655(c)].

In consideration of the foregoing, § 91.70(c) of the Federal Aviation Regulations is amended, effective August 23, 1974.

Amendment 91-126

Pilot Responsibility Under IFR After an ATC Clearance is Received

Adopted: February 26, 1975 **Effective: March 6, 1975**

(Published in 40 F.R. 10451, March 6, 1975)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to further ensure that pilots, operating under instrument flight rules (IFR), do not descend below FAA prescribed minimum altitudes upon receipt of an ATC approach clearance. It makes mandatory and expands the provisions of the FAA Notice to Airmen on the same subject issued on December 27, 1974.

Present § 91.119 provides that no person may operate an aircraft under IFR below applicable prescribed minimum altitudes. Notwithstanding this regulation, pilots operating under IFR on unpublished routes, or while being radar vectored, have, due to inadvertence or uncertainty, descended below minimum IFR altitudes after receiving an approach clearance. Such descents cannot be tolerated in an integrated air traffic control system. Safe altitude maintenance is essential if the system is to provide the level of safety to which it was designed and the public has the right to expect. To prevent a recurrence of these incidents, this action requires each pilot, operating under IFR on an unpublished route or being radar vectored, when an approach clearance is received, to maintain his last assigned altitude (1) unless a different altitude is assigned by ATC, or (2) until the aircraft is established on a segment of a published route or instrument approach procedure. The amendment also reemphasizes the requirement of § 91.119 and Parts 95 and 97 that an aircraft established on such a segment is subject to the FAA published minimum altitudes applicable to descent within each succeeding segment of a route or instrument approach procedure unless another altitude is assigned by ATC.

As before, pilots remain responsible for safe altitude management after an approach clearance is received, including compliance with applicable minimum prescribed altitudes. To further ensure this, the new rule requires the pilot to maintain the ATC assigned altitude in effect when the approach clearance is received, unless a different altitude is assigned by ATC. This amendment in no way limits the pilot's right to request any altitude desired after an approach clearance is received. Thus, if a pilot desires an altitude change after an approach clearance is received, he may request an appropriate clearance from ATC until the aircraft is established on a published route or instrument approach procedure. At that time the pilot may, on his own initiative, descend to the published minimum altitude for the route segment or approach procedure segment, as appropriate, unless cleared for another altitude by ATC. In this connection, it should be emphasized that an ATC clearance does not relieve the pilot of his direct responsibility for, and his final authority as to, the operation of his aircraft. This responsibility is clearly set forth in § 91.3(a).

The FAA believes that the effectiveness of the amendment discussed above will be further enhanced if action is also taken to address the situation of when a pilot may be uncertain of the meaning of an ATC clearance. Therefore, (although pilots have already been advised in the Airman's Information Manual that they are expected to request that clearances be repeated or clarified if not understood), § 91.75 is amended to require that the pilot immediately request clarification by ATC if he is at all uncertain concerning the meaning of clearance.

Finally, an editorial change to § 91.116(f) is being made. This involves substitution of the word "may" for the word "will" in the last sentence of § 91.116(f). This change is necessary since this amendment introduces the word "shall" into § 91.116(f) which could raise questions concerning the meaning of the word "will." It is not intended that the last sentence of § 91.116(f) have mandatory effect. No substantive change results.

The FAA finds that this amendment is required to eliminate any pilot uncertainty concerning the effect of an approach clearance on his duty to maintain a safe altitude and to prevent the recurrence of descents below that altitude. Accordingly, safety and the public interest require its immediate adoption. This is particularly true with respect to ensuring safe altitude management on the part of pilots who are operating under IFR on unpublished routes or are being radar vectored. It is therefore found that notice and public procedure on these amendments would be contrary to the public interest and that good cause exists for making these amendments effective in less than 30 days after publication thereof in the Federal Register.

Authority: (Section 307 of the Federal Aviation Act of 1958, 49 U.S.C. 1348, 1354; section 6(c) of the Department of Transportation Act, 49 U.S.C. 1655(c)).

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective March 6, 1975.

Amendment 91–127

Relaxation of Equipment Requirements in Group II Terminal Control Areas

Adopted: April 7, 1975 **Effective: May 14, 1975**

(Published in 40 F.R. 16651, April 14, 1975)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to relax the equipment requirements in Group II Terminal Control Areas (TCAs). The major effect of this amendment is to eliminate the requirement for automatic pressure altitude reporting equipment in these TCAs. In addition, this amendment provides for an exception to the requirement for a transponder for IFR flights operating to or from a secondary airport located outside of, but in close proximity to, a Group II TCA when the transition, approach or departure procedures for that airport involve flight within that TCA. Finally, this amendment adds a requirement for two-way radio communications within Group II TCAs.

Notice No. 74–28 was published in the Federal Register on July 25, 1974 (39 FR 27147) stating that the Federal Aviation Administration was considering amending Part 91 to rescind the requirement for automatic pressure altitude reporting equipment in Group II TCAs. The Notice also proposed to make permanent the existing temporary exceptions for transponders for certain IFR flights within Group II TCAs, and to add a two-way radio communications requirement.

Interested persons were afforded an opportunity to participate in the proposed rule making. Due consideration was given to all relevant matter presented.

One hundred and fifty one public comments were received in response to the Notice with only twelve written comments objecting to the proposal. The principal argument in opposition to the proposal was that by eliminating the encoder requirement in Group II TCAs it would practically eliminate the requrements for altitude encoding equipment, thus creating an economic hardship on the manufacturers of these components. The amendment, however, affects only Group II TCAs and does not affect the requirement for altitude encoders in Group I TCAs or above 12,500 feet MSL. Further, this amendment does not prevent, or discourage, aircraft owners from installing this equipment to take advantage of the potential benefits.

Although the FAA takes note of this objection on economic grounds by certain manufacturers, the primary determination for adoption of this rule must be based upon considerations of safety and efficiency for operation within the TCAs. It has accordingly been determined that it would be an unnecessary burden, not justified in terms of increased safety, to require automatic pressure altitude reporting equipment in Group II TCAs at this time.

The other stated objection to the proposal was that rescinding the altitude encoding requirements would derogate safety and impair ATC efficiency in busy terminal areas. It must be pointed out that the requirement for altitude encoders has not been in effect as yet in Group II TCAs and is not scheduled to take effect until July 1, 1975. Therefore, this amendment does not change any presently existing requirements for altitude encoding equipment. Furthermore, the FAA has determined that, for the foreseeable future, encoding equipment is not necessary for safety in Group II TCAs since two-way radio communications will provide adequate altitude reporting in the less dense air traffic environments of these TCAs. In summary, the FAA believes that two-way radio communications, together with the continuing requirement for a 4096 code transponder, will provide an adequate level of safety in Group II TCAs.

Further review of the safety aspects of operation within Group II TCAs has led to the conclusion that one of the proposed exceptions in the proposal should not be adopted. The Notice proposed that transponders not be required for IFR flights operating to or from secondary airports within the TCA, or to IFR flights operating to or from an airport outside of, but in close proximity to the TCA, when the transition, approach or departure procedures would require flight within the TCA. The FAA has concluded that the minor penetration of the TCAs through the use of IFR transition, approach or departure procedures for airports outside of the TCAs would not substantially interfere with operations at the primary airport. This exception is preserved. However, the FAA believes that operations at secondary airports within the TCA should not be distinguished from operations at the primary airport and that it is necessary that aircraft operating at these airports be transponder equipped. This exception will, therefore, terminate on July 1, 1975.

Authority: [Sections 307(a), 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. 1348(a) and 1354(a)); and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c))].

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective May 14, 1975.

Amendment 91–128

ATC Deviation Authority: Automatic Pressure Altitude Reporting Equipment

Adopted: June 20, 1975 **Effective: July 1, 1975**

(Published in 40 F.R. 27015, June 26, 1975)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations (14 CFR Part 91 is to revoke the provision, in § 91.24(c), that requires requests for authorization to operate in certain controlled airspace, without the required automatic pressure altitude reporting equipment, to be submitted at least four hours before the proposed operation. This amendment permits Air Traffic Control (ATC) to immediately authorize operation without automatic pressure altitude reporting equipment (referred to herein as "encoders"). This relaxation applies to operation in Group I Terminal Control Areas (TCAs) and in controlled airspace above 12,500 feet MSL, and to operation in Group III TCAs when two-way radio communications are not maintained.

On May 25, 1973, the FAA adopted amendments to FAR Parts 71 and 91 (Amendments 71-8 and 91-116; 38 F.R. 14672; June 4, 1973) to require aircraft operating in TCAs and designated en route airspace to be equipped with improved ATC transponders and with encoders. When it appeared that equipment supply problems prevented aircraft operators from meeting the original compliance schedule, the compliance dates for operation within TCAs were postponed six months by Amendment 91-123 (39 F.R. 23253; June 27, 1974).

Pursuant to Amendment 91-123, the transponder and encoder requirements of § 91.24 became effective for Group I TCAs on January 1, 1975, and would have become effective on July 1, 1975, for Group II and Group III TCAs. Subsequently, however, after further review, the encoder requirement for Group II TCAs was revoked (Amendment 91-127, 40 F.R. 16651, April 14, 1975). In summary, that action left encoder requirements effective, after January 1, 1975, for Group I TCAs, and after July 1, 1975, for Group III TCAs (when two-way radio communications are not maintained) and for all controlled airspace of the 48 contiguous States and the District of Columbia, above 12,500 feet MSL, excluding the airspace at and below 2,500 feet AGL.

For all of the above described airspace, § 91.24(c)(2) permits ATC to authorize deviations from both the transponder and encoder requirements for operations (not involving an inoperative transponder), but only upon request at least four hours before the proposed operation.

This amendment does not change the four-hour advance notice requirement as applied to required transponders. One of the reasons for this is that large numbers of aircraft are transponder equipped and the effect of the four-hour advance notice requirement is, therefore, not widespread. However, the FAA has concluded that the four-hour advance notice requirement, as applied to encoders, unduly restricts ATC's flexibility and ability to authorize deviations when circumstances would otherwise permit the safe operation of aircraft within affected airspace without an altitude encoder. This is aggravated by the relative scarcity of encoder-equipped aircraft. Also, because of the vital aircraft tracking and identification functions performed by transponders, the current advance notice requirement is needed to provide ATC with an adequate opportunity to accommodate nontransponder-equipped aircraft in a mix with transponder equipped aircraft. On the other hand, experience has indicated that, under some traffic conditions, controllers can safely admit nonencoder-equipped aircraft, on a moment's notice, based on a judgment that the function of that equipment (i.e., furnishing altitude information) can be safely supplied by voice communications. In view of this, the widespread effect of the advance notice requirement on the large number of nonencoder-equipped aircraft is not justified.

Further, because of the large number of nonencoder-equipped aircraft, the four-hour advance notice requirement results in many operations being conducted on circuitous routings to avoid controlled airspace. In these cases, the advance notice requirement, by preventing ATC from routing such flights through controlled airspace, unnecessarily prevents a savings in time and fuel. Finally, after July 1, 1975, because of the expanded encoder requirement that is effective on that date, ATC will have an increased need to issue encoder deviation authorizations, with less than four hours notice, in response to conditions such as icing, turbulence, or high winds that may justify the rapid routing of aircraft into airspace at altitudes above 12,500 feet, or the vectoring of aircraft through TCAs, for safety purposes.

Consistent with the above, this amendment redesignates paragraph(c)(2) of § 91.24 as paragraph (c)(3 and adds a new paragraph (c(2) permitting immediate deviations (within the discretion of ATC) for operations without "operating" encoders. This permits immediate deviations for aircraft with inoperative encoders as well as aircraft wthout encoders. Since paragraph (c)(1) is limited to cases involving inoperative transponders, this limits the scope of the four-hour advance notice provision of paragraph (c)(3) (formerly paragraph (c)(2)) to the operation of aircraft without transponders. Paragraph (c)(3) is so amended.

In summary, operations in an increased amount of controlled airspace will become subject to § 91.24 requirements on July 1, 1975. The FAA has determined that relieving the restriction imposed by the four-hour advance notice requirement, as it applies to encoders, on or before the July 1, 1975, compliance date is necessary to avoid an unwarranted burden on aircraft operators and to permit ATC to deal more flexibly with aircraft routing problems that may involve safety considerations.

Because of these public interest factors involving both efficiency and safety, and since the relief afforded herein must be available to aircraft operators by July 1, 1975, it is concluded that notice and public procedure on this action would be impractical and contrary to the public interest in the execution of FAA's responsibilities under the Federal Aviation Act of 1958. Therefore, good cause is found for dispensing with notice and public procedure under 5 U.S.C. § 553. Further, since this amendment relieves a restriction, it may be made effectve in less than 30 days after publication in the Federal Register.

Authority: Sections 307, 313(a), and 601 of the Federal Aviation Act of 1958 (49 U.S.C. §§ 1348, 1354(a), and 1421); and Section 6(c) of the Department of Transportation Act (49 U.S.C § 1655(c)).

In consideration of the foregoing, § 91.24(c) of the Federal Aviation Regulations (14 CFR Part 91) is amended, effective July 1, 1975.

Amendment 91-129

Taxi Clearances at Airports With Operating Control Towers

Adopted: July 3, 1975 **Effective: August 18, 1975**

(Published in 40 F.R. 29704, July 15, 1975)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to provide that no pilot may taxi an aircraft on a taxiway at an airport with an operating control tower unless an ATC clearance is obtained.

Notice No. 74-13 was published in the Federal Register on March 27, 1974 (39 F.R. 11301) stating that the Federal Aviation Administration was considering amending Part 91 to clarify the rules regarding the clearances required at airports with operating control towers. That Notice proposed to require that pilots obtain an appropriate clearance before taxiing, taking off, or landing on the movement area of the airport, and proposed to add a definition of "movement area."

Interested persons were afforded an opportunity to participate in the proposed rule making. Due consideration was given to all relevant matter presented.

Forty-five comments were received in response to the Notice. Twelve commentators objected to the proposal. The other comments either concurred or suggested minor changes.

One commentator objected to the proposed amendment on the basis that § 91.87(b) already requires two-way radio communication before an aircraft is operated to, from, or "on an airport." He stated that his interpretation of this paragraph, together with § 91.87(h) (which requires a clearance before taxiing on a runway) is that an aircraft on an airport with a control tower should not move under its own power until a clearance is received. This amendment is issued to make § 91.87 consistent with this commentator's interpretation, with respect to the taxiing of aircraft on taxiways. This amendment, therefore, prescribes what pilots have long practiced, that is, obtaining a clearance from the tower prior to taxiing on a taxiway. This amendment was proposed because § 91.87(h) omitted a specific reference to taxiways.

Several commentators objected to the introduction of what they believed was a new, unnecessary, and potentially confusing term; "movement area." While the term "movement area" need not cause confusion, the FAA has determined that it is unnecessary, and with the addition of the term "taxiways" to the regulation those areas in which an ATC clearance should be required are adequately described. Accordingly, this amendment is adopted without use of the proposed term "movement area," and adds only taxiways to the current ATC clearance requirement of § 91.87(h).

One commentator expressed his belief that the Federal Aviation Act of 1958 does not establish the necessary authority for controlling ground movements of aircraft. The FAA does not agree. That Act adequately supports the issuance of regulations to ensure the safe operation of aircraft on the ground. "Air commerce" as defined in the Act (Sec. 101(4) includes any operation or navigation of aircraft which directly affects, or which may endanger safety in, air commerce. "Operation of aircraft" is defined in the Act (Sec. 101(26)) to mean any use of aircraft for the purpose of air navigation. Section 307(c) of the Act specifically authorizes the Administrator to prescribe rules for the navigaton of aircraft, for the protection of persons and property on the ground, and for the prevention of collision between aircraft, and between aircraft and land or water vehicles. Finally, § 313(a) authorizes the Administrator to make or amend such general or special rules as he shall deem necessary to carry out the provisions of, and to exercise his duties under the Act. None of these provisions of the Act are limited to the operation of aircraft in flight.

One comment requested that the proposal be broadened to include aircraft movement other than taxiing (such as the towing of aircraft) and to include persons other than pilots. In order not to exceed the scope of Notice 74-13, this amendment is limited to pilots and to the taxiing of aircraft.

Authority: [Sections 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. §§ 1348, and 1354(a)); section 6(c) of the Department of Transportation Act (49 U.S.C. §§ 1655(c))].

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective August 18, 1975, by amending § 91.87(h).

Amendment 91-130

Special Flight Authorizations

Adopted: January 5, 1976 **Effective: February 12, 1976**

(Published in 41 F.R. 1890, January 13, 1976)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to provide for the issuance of special flight authorizations to operators of Canadian registered amateur-built experimental aircraft who desire to operate the aircraft in the United States for the purpose of demonstrating it at airshows in the United States.

This amendment is based on a Notice of Proposed Rule Making (Notice No. 74-35) issued on November 12, 1974, and published in the Federal Register on November 20, 1974 (39 F.R. 40785).

Interested persons were afforded an opportunity to participate in the making of this amendment and due consideration was given to all matters presented. Fourteen comments were received in response to the Notice. While all the comments received were favorable, some of the commentators recommended changes to the proposed amendment which are discussed below.

One commentator stated that the proposal should be broadened to include amateur-built aircraft of other nations that meet the same level of airworthiness as U.S. amateur-built aircraft. As stated in the Notice, the majority of the petitions for exemptions to attend airshows are received from Canaa and petitions for exemptions from other nations are very few. Therefore, the FAA does not believe that a change to the Notice to acccommodate the few petitions from other nations is warranted at this time.

Another commentator suggested that the rule should also permit the issuance of special flight authorizations to all Canadian aircraft issued Canadian Flight Permits in order to include ex-military aircraft, such as Canadian "Warbird aircraft" that attend many airshows in the United States.

The FAA notes that such aircraft were not included in the proposal and are not included in this amendment. Canadian "Warbird aircraft" are high-performance aircraft, often turbine-powered, operating primarily in accordance with operating limitations established by the Canadian military services. Because of the operating characteristics of these aircraft, the FAA believes that it is in the interest of safety to process requests concerning such aircraft on an individual basis in accordance with Part 11 of the Federal Aviation Regulations.

Finally, one commentator suggested that the proposal be changed by substituting the term "fly-in" for the term "airshow". However, the commentator presented no reasons for the suggested change other than that it might be more appropriate. Since it has not been established that the terms are synonymous, substituting the terms suggested could result in a substantive change to the regulation not proposed in the Notice. Therefore, the effect of the change recommended must be fully evaluated. If it is determined that the suggested change has merit, it will be the subject of a future rule-making action.

This amendment is made under the authority of sections 313(a), 601, 603, and 610(b) of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423 and 1430(b)), and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, § 91.28 of the Federal Aviation Regulations is amended, effective February 12, 1976, by revising paragraph (a) of that section and by adding a new paragraph (b)(6).

Amendment 91-131

Revocation of Jet Advisory Area Rules

Adopted: March 16, 1976 **Effective: April 26, 1976**

(Published in 41 F.R. 12279, March 25, 1976)

The purpose of these amendments to Parts 75 and 91 of the Federal Aviation Regulations is to revoke all references in those parts to the descriptions of various kinds of jet advisory areas and the requirements applicable to aircraft operating in such airspace.

This amendment is based on a Notice of Proposed Rule Making (Notice No. 75-29) issued on June 30, 1975, and published in the Federal Register on July 8, 1975 (40 FR 28628). Interested persons have been afforded the opportunity to participate in the making of this amendment, and due consideration has been given to all relevant matter presented.

Two public comments were received in response to the Notice, and both endorsed the changes proposed therein.

As stated in the Notice, § 75.15 prescribes the different kinds of jet advisory areas, and Subpart C of Part 75 describes the airspace within the continental control area, which has been established and specifically designated as jet advisory areas. Section 91.99 prescribes the operational requirements applicable to aircraft operating within the jet advisory areas designated in Part 75. Although not mentioned in the Notice, the second sentence in § 75.1 briefly describes the basis for the airspace descriptions in Subpart C of Part 75. As Subpart C was identified in the Notice as a regulation to be revoked, and is being revoked herein, the deletion of the second sentence in § 75.1 is within the scope of the Notice, and is accomplished in this amendment without further Notice or public rulemaking procedures.

By definition, jet advisory areas may not be designated within positive control areas. Thus, as the airspace within positive control areas increased, along with the ATC capability to segregate traffic therein, the need for jet advisory areas correspondingly decreased, and, as stated in the Notice, the last jet advisory area was revoked in 1974. No further use of jet advisory areas is foreseen. Therefore, all references to jet advisory areas are unneeded, and are, accordingly, revoked.

Authority: [Sections 307 and 313(a) of the Federal Aviation Act of 1958, (49 U.S.C. §§ 1348 and 1354(a)); and Section 6(c) of the Department of Transportation Act, (49 U.S.C. § 1655(c)).]

In consideration of the foregoing, Parts 75 and 91 of the Federal Aviation Regulations are amended, effective April 26, 1976.

Amendment 91-132

Radio Equipment for Overwater Operations

Adopted: April 13, 1976 **Effective: May 24, 1976**

(Published in 41 F.R. 16794, April 22, 1976)

The purpose of this amendment to Subpart D of Part 91 of the Federal Aviation Regulations is to permit persons subject to that subpart to operate an airplane in overwater operations with one HF transmitter and one HF receiver instead of dual HF communications equipment, when the airplane has two VHF transmitters and two VHF receivers for communications.

Interested persons have been afforded an opportunity to participate in the making of this amendment by Notices of Proposed Rule Making No. 73-20 and No. 73-20A.

Notice 73-20 was issued June 19, 1973 (38 F.R. 17019; June 28, 1973). In it the FAA recognized that the present requirements of § 91.191(a) with respect to redundancy of HF radio equipment may impose an undue burden on the operators of aircraft that must have such equipment installed to achieve compliance. The FAA stated its belief that at that time VHF facilities were so extensive on all ocean routes, and the gaps in VHF coverage so small, as to make the likelihood of an HF equipment failure occurring during the absence of VHF coverage very remote.

Accordingly, it was proposed to amend § 91.191 to add an exception in a new paragraph that would provide that when both VHF and HF communications equipment are required for the route and the airplane has two VHF transmitters and two VHF receivers for communications, only one HF transmitter and one HF receiver is required for communications.

The FAA received 11 public comments in response to Notice 73-20. Ten of the commentators expressed approval of the proposal. The opposing commentator, the Air Line Pilot Association, noted that all of the comments it received from pilots engaged in extended overwater operations were unanimous in their opinion that VHF facilities are not as extensive as the FAA believed when the Notice was issued.

In response to this comment, the FAA reviewed all relevant facts available with respect to the extent of VHF facility coverage for overwater routes and the review indicated that significant changes had occurred in VHF coverage over those routes because of changes in the Ocean Station Vessel (OSV) program sponsored by the International Civil Aviation Organization.

Notwithstanding the reduction in VHF coverage, the FAA believes that there is sufficient justification for the proposed change in the radio equipment requirements for overwater operations. However, in view of the fact that most of the comments to Notice 73-20 were made without an awareness of this reduced coverage, the FAA issued a supplemental notice of proposed rule making, Notice 73-20A (40 F.R. 29089; July 10, 1974), to allow for the review of those comments and the submission of comments by other interested persons in the light of this information and the additional information contained in Notice 73-20A.

The FAA received 32 public comments in response to Notice 73-20A. All but one comment favored the adoption of the proposed amendment. The United States Coast Guard opposed the relaxing of the present dual HF communications requirement because HF equipment "provides the only reliable continuous means of communication" for transoceanic flights. It noted the elimination of many of the Ocean Stations, and the reduction in communications requirements for those remaining. Finally, the Coast Guard pointed out that "the Navy HF/DF net is one of the primary means of obtaining position information on distressed aircraft."

The FAA does not agree that the present requirement for dual HF equipment should be retained. This amendment does not eliminate the requirement for HF equipment altogether. However, for the reasons stated in Notice 73-20 as supplemented by Notice 73-20A (including the improved reliability of modern HF equipment), the FAA believes that the requirement for dual HF equipment for persons operating aircraft under Subpart D of Part 91 is unnecessary and imposes an unreasonable burden on those operators.

It should be noted that the Air Line Pilots Association in its comment on Notice 73-20A stated that the proposed relief should be given to operators of aircraft under Part 91. It based its change of position on the results of the exemption which the FAA issued to the National Business Aircraft Association, Inc., on October 20, 1972, granting its members relief substantially the same as that provided by the proposed rule change. An FAA inquiry into the operations conducted under that exemption, estimated by NBAA to involve over 1,000 aircraft, revealed no indication of HF equipment malfunctions or any adverse effect on safety. In addition, many persons commenting favorably on Notice 73-20A noted incident-free operations under the exemption.

(Sections 313(a), 601, and 603 of the Federal Aviation Act of 1958; 49 U.S.C. 1354(a), 1421, and 1423. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c).)

In consideration of the foregoing, and for the reasons stated in Notice No. 73-20 as supplemented by Notice No. 73-20A, § 91.191 of the Federal Aviation Regulations is amended, effective May 24, 1976, by deleting the phrase "paragraph (c)" and substituting therefor the phrase "paragraphs (c) and (d)" in the lead-in portion of paragraph (a) and by adding a new paragraph (d).

Amendment 91-133

Operations Review Program

Amendment No. 1: Clarifying and Editorial Changes

(Published in 41 F.R. 47227, October 28, 1976)

The purpose of these amendments is to incorporate into Parts 63, 91, 105, 121, 123, 129, 135, 145, and 147 of the Federal Aviation Regulations several clarifying and editorial revisions.

These amendments are based on a Notice of Proposed Rule Making (Notice 75-39), published in the Federal Register on December 8, 1975 (40 FR 57342) and are the first in a series of amendments to be issued as part of the First Biennial Operations Review Program.

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all comments presented. Several changes have been made to the proposed rules based upon the relevant comments received and subsequent review by the FAA. Those changes and comments are discussed below and, except for those changes, the reasons for the amendments remain the same as contained in Notice 75-39. The following discussion is keyed to the like-numbered proposals contained in Notice 75-39.

Proposal 1. Addition of class ratings to flight engineer certificates is presently controlled by § 63.33 and hence the proposed revision to § 63.45 would create a redundancy. As the applicable dates have passed, § 63.45 is no longer operative and therefore it is being deleted.

Proposal 4. This proposed change to § 91.24 is being deferred for consideration in a later notice.

Proposal 9. As December 30, 1975 has passed, § 91.52(g) is no longer applicable and is therefore deleted.

Proposal 13. This proposal to amend § 91.181 contained two typographical errors. The reference to §§ 91.127 and 91.129 should read §§ 91.217 and 91.219, respectively.

Proposal 27. This proposal to amend § 121.433(c)(1)(i) was intended to clarify the existing rule. Several commentators noted that the intended clarification had the opposite effect. Therefore, this proposal is being withdrawn to allow further study to determine whether a clarification is necessary and how best to accomplish it.

Proposal 39. One commentator opposed the addition of paragraph (b) to § 135.67 on the basis that it would be physically impossible for the pilot in command to make the determination that the inspections required under § 91.217 have been made. In light of this comment and the fact that review of Part 135 is presently underway, this proposal is being withdrawn from consideration at this time.

Proposal 41. One commentator pointed out that the preamble did not speak to this proposal to amend § 135.138(b). The only change effected by this proposal is to correct the reference to revised Part 61. The commentator also objected to use of the words "related advisory circulars." As those words are contained in the current rule and removal would amount to a substantive change, the comment is beyond the scope of this regulatory action.

Proposals 43 and 44. One commentator stated, "The deletion of section 135.144a leaves the proposed rule incomplete in that FAR 23.1(a) applies to airplanes of nine seats or less and therefore no provisions are given for this in 135.144 as proposed." Such is not the case. The change to § 135.144 and the deletion of § 135.144a will in no way affect current substantive requirements for aircraft of nine seats or less. Section 135.144, as its title indicates, imposes additional requirements for airplanes carrying 10 or more passengers.

The commentator also noted substantive objections to § 135.144 and noted that no substantive discussion of the proposed change was included in the notice. Since the proposed rule change was nonsubstantive, it was not addressed in the preamble other than to note that an editorial change was being proposed. Substantive objections to the provisions of § 135.144 are beyond the scope of this regulatory action.

Proposals 48, 49, 50, and 51. Comments received on these proposals to make several changes to Part 137 indicate that further study is appropriate. The proposals are being withdrawn and will be addressed in a later notice.

Proposal 53. One commentator suggested that the phrase "or equivalent" be added after "inspection procedures manual" in proposed § 145.45(f) since several air carriers holding repair station certificates utilize different titles for their manuals. The intent of the regulation is not to require a manual of specific title but a manual of specific content. Therefore, to preclude confusion, the language is changed to "a manual containing inspection procedures".

These amendments are made under the authority of secs. 307, 313(a), 601, 603, and 607, Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), 1421, 1423, and 1427), and sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, and for the reasons stated in Notice No. 75-39, Parts 63, 91, 105, 121, 123, 129, 135, 145, and 147 of the Federal Aviation Regulations are amended effective November 29, 1976.

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Inflation Impact Statement under Executive Order 11821 and OMB Circular A-107.

Amendment 91-134

Noise Abatement Landing Flap Amendment and Notice of Decision Not to Prescribe Two-Segment Approach Requirements Submitted by the Environmental Protection Agency

Adopted: November 15, 1976 **Effective: January 28, 1977**

(Published in 41 F.R. 52388, November 29, 1976)

This document contains an amendment to Part 91 of the Federal Aviation Regulations (14 CFR Part 91) requiring use of noise abatement flap settings where appropriate, and a notice of decision not to prescribe a two-segment approach under visual conditions for civil turbojet-powered airplanes or a two-segment instrument landing system (ILS) approach for civil turbojet-powered airplanes. This action involves an amendment to § 91.85 of the Federal Aviation Regulations that requires the use of the minimum certificated landing flap setting for civil turbojet-powered airplanes.

This document also gives notice of FAA's decision, pursuant to § 611(c)(1) of the Federal Aviation Act of 1958, as amended, not to prescribe further amendments to the Federal Aviation Regulations concerning approach flap setting procedures based upon the proposals contained in an EPA recommended regulation (Notice No. 75-35). However, as part of the FAA response to the EPA recommended regulation, the FAA is also issuing a separate Notice of Proposed Rule Making (NPRM) under § 611(b)(1) of the Federal Aviation Act of 1958, as amended, containing a proposal that is beyond the scope of the EPA recommended regulation in Notice No. 75-35. That NPRM is published in the "Proposed Rule" portion of today's *Federal Register*. If adopted, the proposed rule would require pilots of all turbojet-powered airplanes to delay their landing flap setting until 1,000 feet above the airport elevation under both VFR and IFR conditions, unless the pilot determines that it is necessary in the interest of safety to select the final landing flap setting at a higher altitude.

I. *Notice No. 75-35, Public Hearing, and Comments Considered.*

On August 29, 1975, the EPA submitted to the FAA three separate proposed amendments to the Federal Aviation Regulations (FARs) for consideration and publication in the *Federal Register* under § 611(c) of the Federal Aviation Act of 1958, as amended ("the Act"). Accordingly, the FAA issued Notice No. 75-35 containing EPA's recommended regulations. Notice No. 75-35 was published in the *Federal Register* on September 25, 1975 (40 FR 44256) inviting interested persons to participate in the making of the proposed rule by submitting written comments.

Pursuant to § 611(c) of the Act and based upon a notice published in the *Federal Register* on September 25, 1975 (40 FR 44184), a public hearing was held in Washington, D.C., on November 5, 1975, to receive oral and written statements on the matters contained in the Notice. Written statements submitted and a transcript of the oral statements are included in the regulatory docket.

The FAA has given due and careful consideration to the information provided by the EPA, by federal government-sponsored research programs, by the written and oral statements presented at the public hearing, and by the comments submitted to the regulatory docket. In addition, the FAA has consulted with the EPA and with the Secretary of Transportation. Based on an analysis of this information and after consultation, the FAA concludes that it should adopt an amendment to the FARs based on Proposal I contained in the EPA recommended regulations but should not prescribe regulations based on Proposals II and III.

Numerous written or oral comments in response to Notice No. 75-35 were received from private citizens, citizen groups, aviation trade and user associations, Federal Government agencies, the Council on Wage and Price Stability, and foreign, state, and local governments. These comments, including oral presentations at the public hearing, address or affect the EPA proposals.

II. *Flap Setting Procedures for Civil Turbojet-Powered Airplanes.*

As stated in the Notice, the EPA proposed to amend § 91.85 of the FARs to provide noise relief to communities in the vicinity of airports by prescribing reduced flap setting procedures for civil turbojet-powered airplanes. This proposal was based on studies referenced in the EPA proposal showing that an approach made with less than full landing flaps reduces aircraft noise as compared to a full flap approach, since the airframe drag at the reduced settings is less, lower power is required. The reduced flap procedure for each type of turbojet-powered airplane would, as proposed, consist of the minimum final flap setting shown in the Airplane Flight Manual that is appropriate and safe for landing, based upon such factors as load, weather, runway conditions, etc. However, the EPA proposal expressly recognized that each pilot in command of an airplane has the final authority and responsibility for the safe operation of his airplane. Therefore, if the pilot in command determines, in the interest of safety that a higher flap setting for that airplane should be used for a particular approach and landing, the pilot may, under the EPA proposal, use the higher flap setting.

The explanation for the EPA reduced flap proposal stated that certain air carriers are currently using a reduced flap procedure and that the Air Transport Association recommended continuation of the reduced flap approach. The explanation further stated that "[s]ince the procedure is considered safe and will achieve an appreciable reduction in noise caused by civil turbojet engine-powered airplanes, it is proposed to make the use of a reduced flap procedure mandatory for all civil turbojet engine-powered airplanes."

The flap setting procedures developed by the Air Transport Association (ATA), which are currently used by many air carrier pilots for noise abatement (and fuel conservation) purposes at all airports with many types of approaches (ILS, VOR, Visual, etc.), both IFR and VFR, are as follows:

1. Approach the airport area at as high an altitude as possible in accordance with current ATC procedures.

2. Remain in a clean configuration for as long as possible.

3. Proceed in-bound from the final approach fix, or a similar distance for a visual approach, with flaps at one setting less than final landing flaps planned for the particular landing.

4. Extend final landing flaps at a point on final approach at which the aircraft is 1000 feet above field elevation, equipment performance permitting, with stabilization at not less than 500 feet above field elevation.

5. Use the lowest allowable landing flap setting which is permissible for the particular landing.

The ATA procedures also recommended that initiation of each successive flap extension be made at a speed near the minimum speed, for that particular configuration, to maximize noise abatement benefits. The FAA encourages air carriers to use these procedures and has approved their use, on a case-by-case basis, by individual operators where fully consistent with safety. In addition to issuance of the reduced landing flap requirements contained herein, the FAA is continuing its effort to encourage broader use of these procedures where consistent with the highest degree of safety for each operator on an individual basis.

The EPA proposed rule differed from the procedure recommended by ATA. Proposed § 91.85(c) would require pilots of all turbojet-powered airplanes to "use the minimum certificated flap setting set forth in the Airplane Flight Manual that is appropriate to each phase of that approach and landing." However, there is no minimum certificated flap setting appropriate to each phase of the approach and landing since there are no defined phases of the approach and landing in the regulations or in the Airplane Flight Manual. The ATA procedure, however, defines two points in the arrival path of the airplane—the final approach fix or a similar distance for a visual approach; and 1,000 feet above the field elevation on final approach.

The FAA does approve certain landing and approach flap settings that are included in approved performance information in the Airplane Flight Manual. In addition, certain larger airplanes have more than one approach flap setting and more than one landing flap setting. The FAA, however, does not specify when in the arrival sequence the approach or landing flap setting must be used. The FAA does not believe it is within the scope of the EPA proposal to add a new regulatory definition prescribing, for all operators, and operating conditions, when each approach phase begins and when each landing phase begins. However, the FAA believes that delaying the final landing flap setting to a point where a stabilized final approach can still be achieved is a valid means of abating noise during the early phases of the approach without compromising safety.

In consideration of the success of the delayed landing flap procedure recommended by ATA (item No. 4) and the FAA's determination that adoption of this procedure in this amendment would be beyond the scope of proposed § 91.85(c) concerning reduced flaps, the FAA is proposing a rule to specify the highest altitude at which the landing flap setting can be selected. This proposal is included in an NPRM that is being published in the "Proposed Rule" section of today's *Federal Register*. The proposal would apply to all pilots of turbojet-powered airplanes regardless of the number of certificated landing flap settings. If adopted, the proposed rule would require that a landing flap setting be selected at an altitude no higher than 1,000 feet above the airport elevation.

The FAA has determined that it is within the scope of the EPA reduced flap proposal to require that for turbojet-powered airplanes certificated with more than one landing flap setting, the pilot in command shall use the minimum certificated landing flap setting for the appropriate conditions. In addition, the FAA believes it is necessary to allow the use of all landing flap settings for training and certification flights. The proposal, as adopted, has been revised accordingly.

The majority of comments were in favor of the EPA reduced flap proposal at least in context. Many of these commenters, however, suggested modifications or clarifications. The comments suggesting changes and the comments objecting to this proposal will be included in the discussion of the reduced flap proposal. Other comments on this proposal are more relevant to the two-segment approach concept and will be included in the two-segment approach discussion.

Several commenters supported the proposal but pointed out that increased landing speeds, heavy braking, and increased use of thrust reversers that might result from a reduction in flap settings should in no way impinge upon safety. The FAA believes that the slight increase in landing speeds (e.g., approximately four knots for a Boeing 727) is consistent with safety, and that unusual braking or stopping methods will not be required.

One commenter stated that pilots would comply with reduced flap landing profiles if encouraged by an advisory circular, but that it should not be a regulatory requirement. The FAA believes reliance on voluntary response to an advisory circular might not be sufficient, and a regulatory requirement would be more effective in assuring the use of this procedure by all segments of aviation that would be covered by the rule.

Commenters opposed to the proposal were particularly concerned that safety would be derogated, with some risk to the lives of passengers, and pointed out that the primary responsibility for flight operational safety lies with the pilot. These commenters pointed out that aircraft are certificated to operate most safely in flap profiles dictated by gross weight, meteorological conditions, landing surface conditions (i.e., wet, short, icy, high, hot, etc.), and that such prerogatives should not be taken from the pilot. Two commenters questioned the use of making such requirements regulatory, while simultaneously providing approval for the pilot not to comply if, in his judgment, a different flap setting is necessary in the interest of safety. The FAA believes that the issuance of a regulation will result in more benefit, in terms of noise reduction, than would an advisory circular, but also recognizes that the primary responsibility for the safety of the aircraft is with the pilot. Accordingly, the regulation provides that, in the interest of safety, the pilot may use a different flap setting.

Another comment stated that the most effective method of abating aircraft noise was to enact zoning ordinances in the vicinity of airports, or achieve quieter turbojet engines through technology applied at the source. While those suggested methods may ultimately produce a great benefit, they are beyond the scope of this proposal, which describes a procedure that is effective and can safely be implemented now. Most commenters opposed to the proposal asserted that use of reduced flap settings would reduce noise levels by an insignificant amount in the approach path, but that increased landing speed would result in increased use of reverse thrust on landing. They claimed that the net effect of this would be more noise in the vicinity of airports and, incidentally, would offset the fuel savings achieved during the approach. While the landing speeds are increased slightly, the FAA has concluded that the landing can be conducted safely and routinely without increased use of reverse thrust, thereby preserving the fuel savings, achieved during the descent.

Presentations made at the public hearing relative to this EPA proposal were from various sources in the industry, and were generally favorable, some with qualified approval.

One comment suggested a review of the aircraft flight manuals to insure that adequate flight and performance data is included. However, the regulation issued herein is applicable only to those operators whose aircraft flight manuals contain approved reduced landing flap settings. This will assure that required flap settings are based on adequate flight and performance data.

Another person commented that a stabilized approach at reudced flap settings should be used in order to establish consistency of touchdown points on the runway and avoid overruns, landings short of the runway, and other hazards associated with the critical approach and landing phase. Also, the time delay to spool up turbojet engines for a go-around could, he stated, be a factor with reduced flap approaches since the power required during the approach is less. He concluded, however, that experience has shown the reduced flap technique has proven effective and safe.

Another person, in support of the proposal, commented that by flying a properly single-segment approach, employing the reduced flap technique, noise reduction equal to or better than that obtained using the two-segment approach could be achieved. He stated that, if started from the same altitude, the reduced flap approach results in a savings of 100 to 200 pounds of fuel per approach, and any advantage of the two-segment approach is confined to noise levels of 95 EPNdb or less, and then only with regard to 707 aircraft. He further stated, and the FAA agrees, that a reduced flap procedure requires minimum training with no new equipment cost or complications resulting therefrom and, most importantly, it is safe. This procedure has been in use by certain segments of the aviation industry for over three years. It does not require new equipment costs or extensive training. So long as the airplane has been certificated at the reduced flap setting for approach and landing and the pilot is aware of the considerations appropriate to his airplane which may preclude a reduced flap setting, the procedure can be safe and effective.

Although the reduced landing flap procedure is being used by many operators, the FAA believes that certain operators may need time for implementation. For example, certain operators may find it necessary to revise their training programs or operations manuals, or both. Therefore, the proposal as adopted provides a reasonable period after the effective date of the amendment for implementation.

The costs required to implement this amendment to FAR 91.85 are estimated to be insignificant. No reduction in runway/airport capacity is anticipated. No new approach facilities need to be installed. There will be noise abatement at essentially all turbojet-served airports and reduced fuel consumption during the final phase of the approach.

In summary, this amendment, as adopted, applies to the pilot in command of all civil turbojet-powered airplanes, U.S., or foreign, for which the certificating authority has approved more than one landing flap setting and for which the appropriate performance information is set forth in the Airplane Flight Manual.

III. *Notice of Decision Not to Prescribe Regulations.*

A. *Regulations Proposed by the Environmental Protection Agency (EPA).*

The EPA also proposed to the FAA on August 29, 1975, a visual two-segment noise abatement approach requirement for turbojet-powered airplanes (EPA Proposal II) and a two-segment ILS noise abatement approach for turbojet-powered airplanes (EPA Proposal III). A two-segment approach to the landing runway would require the pilot to fly an initial steep glide path segment (six degrees as proposed) and to intercept the conventional glide path (generally three degrees) at approximately 700 feet altitude above the elevation of the airport. Approval of both types of two-segment approaches would, under the EPA proposal, be made by the FAA and portrayed on appropriate aeronautical charts.

EPA Proposal II. The proposal would amend § 91.87 of the Federal Aviation Regulations to require that pilots of all civil turbojet-powered airplanes, when landing on a runway with an approved visual two-segment approach during visual weather conditions, use that two-segment approach. Visual weather conditions were defined as—(1) daylight hours; (2) ceiling at or above 3,000 feet; and (3) flight visibility at or greater than 5 nautical miles. EPA stated that a two-segment approach under these visual conditions, using a conventional ILS and colocated distance measuring equipment (DME), was needed since a two-segment ILS approach would not be achieved for several years and prompt action is needed to protect the public health and welfare. EPA further stated that the visual two-segment approach would cause significant noise reduction at those airports having the necessary facilities, although recognizing that very few airports had those facilities.

Four commenters favored the proposal as published, and four commenters favored the proposals with stipulations and provisos. Twenty-two commenters opposed the proposal, and 13 either did not specifically express an opinion or made comments beyond the scope of the proposal.

The comments favoring EPA Proposal II, as published, were generally comprised of airport administrations and individual citizens and one citizen group living in close proximity to an airport. These comments were based, essentially, on the need for noise abatement benefits. Other commenters favored the proposal if no increase in the number of accidents would result, aircrews received proper training, appropriate minimum cloud ceilings and visibilities were established, icing conditions were not present, the tailwind on the upper segment was limited to 15 knots, and the equipment proved reliable. One commenter who favored the proposal stated that any perceptible increase in the accident rate could reverse the cost/benefit of the approach.

Comments opposed to the proposal were received from individuals, airmen, foreign governments, domestic and international pilots groups, the National Transportation Safety Board, and municipal and state governments. The central objection by these comments was lack of safety involved in any two-segment approach. In brief, the following safety objections were made by the commenters:

1. An icing hazard would occur in the upper steep segment because the low power setting would cause bleed air from the engine to be insufficient to prevent ice accumulations.

2. The high sink rate occurring in the upper segment of the approach is hazardous and beyond the design specifications of some air carrier airplanes and electronic equipment.

3. The transition from the upper segment to the lower segment would be at too low an altitude.

4. The wake vortex turbulence would increase significantly for airplanes on a conventional approach.

5. The approach would be a nonstandard approach when used at only 55 airports.

6. Tailwinds would be critical for the upper segment glide slope.

7. Wind shear would be critical for the upper segment glide slope.

8. The descent rate would be greater than the current policy limitation of 1,000 feet per minute (FPM).

9. Pilot workload would be increased, during a critical phase of flight, at the transition from the upper segment slope to the conventional glide path.

10. Engine lag time is unpredictable at low altitude and a high rate of descent.

11. All airplanes cannot fly the proposed steep-segment descent of approximately six degrees.

12. The procedure is contrary to the stabilized approach procedure that has contributed so much to flight safety since the turbine-powered airplane began operation.

13. The two-segment approach must have a glide slope during the entire approach including the steep-segment.

The opposing commenters also presented airspace and equipment problems. Commenters stated that available airspace would decrease 14.3 percent in terminal areas and that the needed colocated distance measuring equipment does not exist at most of the named airports. The commenters suggested that traffic regulation, especially with the mix of approaches, would create an unacceptable workload for the air traffic controller.

Many of the commenters that opposed EPA Proposal II challenged all or part of EPA's contentions regarding cost savings and noise reduction. Some of the commenters stated that the procedure would result in an overall increase in noise levels and fuel consumption since missed approaches would likely become more frequent and large power applications would often occur to reduce the rate of descent upon interception of the three degree glide path.

EPA Proposal III. The proposal would amend § 91.87 of the Federal Aviation Regulations to require that pilots of all civil turbojet-powered airplanes, when making an approach for a landing on a runway having an approved two-segment ILS approach procedure, use that two-segment procedure. EPA stated that the two-segment ILS approach can provide significant noise reduction.

Six commenters favored the proposal as published and three commenters favored the proposal with stipulations and provisos. Twenty-four commenters opposed the proposal and 10 either did not specifically express an opinion or made comments beyond the scope of the proposal.

Commenters favoring the proposal were comprised of one citizen group and individual citizens living in close proximity to an airport, airport administrations, and municipal governments. The commenters agreed with the need for noise abatement and the same general stipulations and provisos listed for the visual two-segment approach were stated for the two-segment ILS.

One comment was in favor of publishing an advisory circular concerning the two-segment ILS approach, but recommended that it not be made regulatory. The commenter further recommended that the four-degree glide slope be pursued.

Strong opposition was expressed concerning EPA Proposal III by twenty-four commenters on the basis that such a maneuver performed in instrument conditions is dangerous and could not be performed within design limitations of a significant number of airplanes. These commenters included individual airmen, domestic and foreign pilot organizations, airline organizations, foreign governments, the National Transportation Safety Board, and a number of municipal and state governments.

Opposing commenters stated that the two-segment ILS approach was not safe due to a variety of events that could adversely affect safe accomplishment of the approach. The commenters noted that not only could the airplane's limits be exceeded but that the proposed approach may exceed the ability of the pilot to correct. In addition, the same safety objections that were made for the visual two-segment approach and listed in the previous discussion were noted in the comments for the two-segment ILS approach.

One commenter estimated that the minimal cost to install the necessary airborne equipment would be $10,000 per aircraft, with a total fleet cost of over $750,000,000. Another commenter estimated that the price for colocating ILS DME equipment could run several times the EPA estimated cost of about $50,000 each. As for the visual two-segment approach, commenters also questioned the noise benefits of the two-segment ILS because increased missed approaches and significant power application upon interception of the three degree glide slope were considered probable.

B. *Background.*

The FAA adopted its first noise abatement procedure for certain airport traffic areas on February 23, 1960. On September 22, 1961, the required procedure was expanded to all airports with a preferential landing runway for noise abatement. This rule, which applies noise abatement runway requirements to all turbine-powered airplanes and to all large airplanes, is prescribed in § 91.87(g) of Part 91 of the Federal Aviation Regulations. In addition, the FAA began its program to reduce aircraft source noise and to examine other operational procedures for turbojet-powered airplanes to abate noise in the airport's traffic area. For example, minimum altitude requirements for turbine-powered and large airplanes are prescribed for noise abatement purposes in § 91.87(d). In addition, ILS equipped turbine-powered and large airplanes approaching a runway being served by an ILS are required, for noise abatement purposes, to fly at or above the glide slope during portions of the approach.

The National Aeronautics and Space Administration (NASA) and the FAA have conducted numerous investigations to determine methods for implementing noise abatement procedures and for measuring the noise reduction associated with the various procedures. In 1971, NASA began testing a two-segment approach to prove that two-segment approach avionics would provide safe and acceptable lateral and vertical approach guidance, and to evaluate the noise benefits of such an approach. In 1973, in-service evaluation began at certain selected airports. NASA reported in 1974, *Operational Flight Evaluation of the Two-Segment Approach for Use in Airline Service* after testing using a Boeing 727–200 airplane that "the system was determined to be safe, easy to fly and compatible with the airline operational environment." This conclusion considered the safety of the Boeing 727–200 airplane flying the two-segment approach but did not consider safety implications of other aircraft on the same approach or other aircraft flying different approaches.

Three transport category airplane manufacturers were using computers and airplane flight simulators during this period to determine the optimum upper slope capability of their turbojet-powered airplanes. The reported results indicated that a variety of upper segment slopes ranging from three degrees to six degrees would be needed to safely accommodate the airplanes that are currently in service.

The development and testing of the two-segment approach by early 1974 indicated that a two-segment instrument landing system (ILS) approach at specified airports might be feasible. An Advanced Notice of Proposed Rule Making (ANPRM) was issued by the FAA and published in the *Federal Register* on March 26, 1974 (39 FR 11193), to invite early public participation in the identification and selection of a course or alternate courses of action concerning two-segment ILS approaches. Further research of the two-segment approach and the comments received in response to the Advanced Notice indicated that the FAA should give further consideration to the possible wake vortex hazard that could be associated with the complete implementation of a two-segment approach.

Although many questions remain to be answered, wake vortex is a problem generally associated with the characteristics of an airplane wing. The lift generated by the shape of a wing (airfoil) is caused by an area of high pressure on the bottom of the wing as compared to an area of lower pressure on top of the wing. This pressure differential triggers invisible counter rotating vortices from the wing tips of an airplane. The initial strength of the vortex is governed in part by the weight, speed, and shape of the wing of the generating airplane. Flight tests have shown that, except where close to the surface, the vortices from large airplanes sink at an average rate of five feet per second until about 900 feet below the flight level of the generating airplane. The vortex strength diminishes with time and with distance from the point of generation. The wake vortex can be a problem to aircraft following below the flight path of the generating aircraft, especially if the generating aircraft is heavier than the following aircraft. Pilots normally avoid the areas of possible wake vortex problems by flying above the flight path of heavier airplanes or by providing enough separation for the wake vortex to diminish sufficiently.

On July 24 and 25, 1974, the Subcommittee on Aeronautics and Space Technology of the House of Representatives Committees on Science and Aeronautics conducted detailed hearings dealing with aircraft noise abatement. These hearings were a continuation of hearings held by the Subcommittee on December 5, 6, and 18, 1973. Two of the subjects discussed were the two-segment approach research and the rule-making status of the Advance Notice on two-segment approaches. FAA witnesses stated that the comments presented a number of problems and that the commenters presented issues which still must be resolved. A number of witnesses to the hearing expressed concern about the wake vortex hazard associated with a mix of multiple steep-segment approaches and with a mix of steep-segment and conventional approaches. Witnesses from NASA stated that a full understanding of the operational implications of the wake vortex hazard for an aircraft following an airplane on a two-segment approach remains to be developed.

NASA and FAA reported in January, 1975, *Flight Test Investigation of the Vortex Wake Characteristics Behind a Boeing 727 During Two-Segment and Normal ILS Approaches*, that vortex strength was approximately the same for a two-segment approach and for a conventional approach. The report, however, did not address the probability of encountering wake vortex.

A paper, *Wake Vortex Hazard Analysis for the Two-Step Approach Environment*, was prepared June, 1975, for the FAA by the Mitre Corporation. The report assumed a situation similar to that which would exist if EPA Proposal II or III were adopted, turbojet-powered airplanes would be required to fly a steep-segment approach and other airplanes could fly a conventional approach. Although the problem of multiple steep-segments was not addressed, the report states that a preliminary analysis has shown the vortex hazard in the mix of steep-segment and conventional approaches to be one to three orders of magnitude greater than that for the conventional approach.

C. *Conclusion.*

The FAA agrees that the adverse affects of aircraft noise during approach and landing should be reduced. However, before adopting a proposed regulation submitted by EPA for the control and abatement of aircraft noise, the FAA must consider the factors set forth in § 611(d) of the Federal Aviation Act of 1958, as amended. Section 611(d)(1) requires the FAA to consider relevant available data relating to aircraft noise including the results of research, development, testing, and evaluation activities. Section 611(d)(3) requires the FAA to consider whether the proposal is consistent with the "highest degree of safety in air commerce or air transportation in the public interest."

The FAA has considered the relevant data available from the research associated with the two-segment approach. Based on existing information of wake vortex generation and persistence, the FAA finds that an unacceptable increase in wake vortex encounters may be anticipated using current minimum aircraft separation standards with any practicable two-segment approach. This finding is believed to be accurate for a mix of conventional and two-segment approaches and for a mix of approach angles for airplanes flying the steep-segment of a two-segment approach.

The additional aircraft spacing needed to allow the wake vortex to diminish sufficiently in strength so that the turbulence would not be a problem would require a doubling of the current separation standards. This would significantly increase enroute and terminal delays and energy consumption. In addition, it would result in inefficient use of the national airspace and in passenger inconvenience. This would seriously derogate the efficiency of ATC and reduce the capacity of the airports involved.

Additionally, the FAA believes that numerous conditions that are hazardous or inimical to flight safety may occur. Among these, which are enumerated above, are icing in the upper steep-segment, the high sink rate with increased engine spool up time, the critical effect of tail winds and wind shear for the upper segment, a descent rate that may exceed present operating limitations, increased pilot work load, and potential airspace and traffic conflicts.

Multiple upper segment slope angles would create a charting problem. The depiction of appropriate capture points and upper segment slope angles to accommodate different types of turbojet-powered airplanes would result in a cluttered approach chart. The complexity of these charts could result in pilot confusion during the critical approach phase of flight. Of the more than 2200 runways currently being used by turbojets, only 100 have been classified as noise sensitive and would be likely candidates for the two-segment approach. Some pilots of turbojet-powered airplanes may experience difficulty interpreting these nonstandard two-segment approaches.

The direct cost of the fleet operators and the FAA facilities system has been estimated as $404 million, and the annual recurring costs commencing in 1980 as $34 million. These are in addition to the indirect costs that would result from doubling the ATC separation criteria to account for the effect of wake turbulence in a mix of two-segment and conventional approaches. The increment in noise abatement achieved by this expenditure over that which is achieved by the reduced flap setting procedure that is being adopted herein, does not justify the direct costs of implementing this procedure.

The FAA believes that the two-segment approaches under visual and instrument conditions are not consistent with the highest degree of safety in air commerce and are not in the public interest. Therefore, the FAA has determined that the two-segment approach, under either visual conditions or under IFR, should not be adopted.

IV. *Amendment and Notice of Decision.* In consideration of the foregoing, and under the authority of sections 313(a), 601, 604, and 611 of the Federal Aviation Act of 1958 (49 U.S.C. §§ 1354(a), 1421, 1424, and 1431), as amended by the Noise Control Act of 1972 (Pub. L. 92-574); section 6(c) of the Department of Transportation Act (49 U.S.C. § 1655(c)); Title I, National Environmental Policy Act of 1969 (42 U.S.C. § 4321 et seq.); and Executive Order 11514, dated March 5, 1970, the Federal Aviation Administration hereby takes the following actions:

(1) Notice is hereby given, in accordance with § 611(c)(1)(B) of the Federal Aviation Act of 1958 (49 U.S.C. § 1431(c)(1)(B), that the Federal Aviation Administration is not prescribing a two-segment approach under visual conditions for civil turbojet-powered airplanes (EPA Proposal II) or a two-segment instrument landing system (ILS) approach for civil turbojet-powered airplanes (EPA Proposal III) in response to the Environmental Protection Agency submission of proposed regulations contained in the notice of proposed rule making published in the Federal Register on September 25, 1975 (40 FR 44256), and identified as Notice No. 75-35.

(2) In accordance with § 611(c)(1)(A) of the Federal Aviation Act of 1958 (49 U.S.C. § 1431(c)(1)(A)), Part 91 of the Federal Aviation Regulation is amended effective January 28, 1977.

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Inflation Impact Statement under Executive Order 11821 and OMB Circular A-107.

Amendment 91–135

Airworthiness Review Program

Amendment No. 3: Miscellaneous Amendments

Adopted: December 13, 1976 **Effective: February 1, 1977**

(Published in 41 FR 55454, December 20, 1976)

The purpose of these amendments is to update and improve—(1) the aircraft, engine, and propeller certification regulations; (2) the operating regulations containing airworthiness standards; and (3) related procedural requirements.

These amendments are based on a notice of proposed rule making (Notice 75-10) published in the FEDERAL REGISTER on March 7, 1975 (40 FR 10802) and are the third in a series of amendments to be issued as part of the First Biennial Airworthiness Review Program. The following series of amendments have previously been issued as part of this Airworthiness Review Program:

Title	*Federal Register citation*
Form number and clarifying revisions	(40 F.R. 2576; Jan. 14, 1975)
Rotorcraft anticollision light standards	(41 F.R. 5290; Feb. 5, 1976)

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all matter presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon the relevant comments received and upon further review within the FAA. Except for the minor editorial and clarifying changes and the substantive changes discussed hereinafter, these amendments and the reasons therefore are the same as those contained in Notice 75-10.

After issuing Notice 75-10, the following six additional notices of proposed rule making were issued as part of the First Biennial Airworthiness Review Program.

Notice No.	*Federal Register citation*	*Title*
75-19	40 F.R. 21866; May 19, 1975.	Notice No. 3: Powerplant Proposals.
75-20	40 F.R. 22110; May 20, 1975.	Notice No. 4: Equipment Deviation List.
75-23	40 F.R. 23048; May 27, 1975.	Notice No. 5: Equipment and Systems Proposals.
75-25	40 F.R. 24664; June 9, 1975.	Notice No. 6: Flight Proposals.
75-26	40 F.R. 24802; June 10, 1975.	Notice No. 7: Airframe Proposals.
75-31	40 F.R. 29410; July 11, 1975	Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals.

Based upon further review by the FAA, a number of proposals which were contained in Notice 75-10 are not being dealt with herein but will be considered in conjunction with other proposals contained in one of the later Airworthiness Review Program Notices of proposed rule making.

The following discussion is keyed to the like-numbered proposals contained in Notice 75-10:

Proposal 2-1. One commentator suggested that the proposed change to § 21.33(a) be revised to limit the new aircraft engine and propeller inspection and test provisions to prototypes only. The FAA does not agree. The intent of the proposals was to make the inspection and test requirements in § 21.33(a) compatible for aircraft, aircraft engines, and propellers. The provision applies to the item presented for type certification tests irrespective of whether or not the item is considered a prototype by the applicant for the type certificate. The proposal is therefore, adopted without substantive change.

Proposal 2-2. No unfavorable comments were received on the proposal to amend § 23.23. Accordingly, the proposal is adopted without substantive change.

Proposal 2-3. No unfavorable comments were received on the proposal to amend § 23.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2-4. No unfavorable comments were received on the proposal to amend § 23.143(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2-5. No unfavorable comments were received on the proposal to amend § 23.145. Accordingly, the proposal is adopted without substantive change.

Proposal 2-6. The proposed change to § 23.149(b) concerning the language "without exceptional piloting skill, alertness, or strength" is related to a proposed amendment to § 23.149 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.149(b) contained in Notice No. 2 is therefore being deferred until final rule making action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-6 will be considered at that time.

Proposal 2-7. Although no unfavorable comment was received on the proposal to amend § 23.175(c), the FAA believes that clarification is necessary. The term "or thrust" has been added to the end of the language "maximum cruising power" in proposed § 23.175(c)(3). Proposed § 23.175(c)(4) was intended to clarify the requirement concerning trim speed, but the FAA believes the conflict in language with a similar provision in § 23.175(b)(2)(iii) may cause confusion. Therefore, proposed § 23.175(c)(4) is withdrawn.

Proposal 2-8. The proposed change to § 23.253(b) is related to a proposed amendment to § 23.253(b)(3) that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75-31; 40 FR 29410 July 11, 1975). The proposed amendment to § 23.253(b) contained in Notice No. 2 is therefore being deferred until final rule making action is taken with respect to the related proposal in Notice 75-31. Comments submitted for Proposal 2-8 will be considered at that time.

Proposal 2-9. No unfavorable comments were received on the proposal to amend § 23.397. Accordingly, the proposal is adopted without substantive change.

Proposal 2-10. No unfavorable comments were received on the proposal to add a new § 23.479(d). Accordingly, the proposal is adopted without substantive change.

Proposal 2-11. One commentator objected to the proposed use of the language "materials used for parts, the failure of which could adversely affect safety" in place of the language "materials used in the structure" in §§ 23.603(a) and 25.603. The FAA does not agree with the commentator's suggestion that all parts of the airplane should, unless specifically excluded, be considered structure. The FAA believes that consideration of the suitability and durability of materials used should be broadened to include parts not normally considered airplane structure.

Proposal 2-12. No unfavorable comments were received on the proposal to amend § 23.607. Accordingly, the proposal is adopted without substantive change.

Proposal 2-13. A commentator questioned whether proposed § 23.675 would require that stops provided to limit the range of motion of an aerodynamic surface be located only on the aerodynamic surface or whether the stop could be located adjacent to the surface. Section 23.675, as proposed and as adopted herein, without change, requires that stops positively limit the range of motion of movable aerodynamic surfaces. This can be accomplished by locating the stop on structure adjacent to the surface.

Proposal 2-14. No unfavorable comments were received on the proposal to amend § 23.685(a). Accordingly, the proposal is adopted without substantive change. See proposal 2-109.

Proposal 2-15. No unfavorable comments were received on the proposal to add a new § 23.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-16. No unfavorable comments were received on the proposed new § 23.787(f). However, one commentator pointed out that the word "contract" in the proposal as printed in the Federal Register should be "contact." The proposal has been corrected to eliminate the printing error. The proposal has also been clarified based on a comment received on Proposal 2-111, to avoid any implication that lamps will be required in cargo compartments.

Proposal 2-17. On commentator questioned the need in proposed § 23.841(b)(6) for a warning indicator at the pilot station to indicate when a cabin pressure altitude of 10,000 feet is exceeded. But as noted by the commentator it is a general industry practice to provide this warning at a cabin altitude of 10,000 feet. The FAA believes that due to the larger number of small airplanes having such awarning many pilots may come to rely on the warning at this cabin altitude. The proposal is therefore adopted without substantive change.

Proposal 2-18. The proposed changes to §§ 23.853, 27.853, and 29.853 concerning the certification requirements necessary to permit smoking in certain aircraft categories are related to proposed standards for § 25.853. The amendments proposed for § 25.853 are contained in Airworthiness Review Program Notice No. 2: Miscellaneous Proposals (Notice 75-10; 40 FR 10802; March 7, 1975) and in Airworthiness Review Program Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75-31; 40 FR 29410; July 11, 1975). The proposals for § 25.853 in Notice 75-10 is being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-31. The proposed amendments to §§ 23.853, 27.853 and 29.853 contained in Notice 75-10 are therefore being deferred until final rulemaking action is taken with respect to the related proposal for § 25.853. Comments submitted for Proposals 2-18, 2-114, and 2-160 will be considered at that time.

Proposal 2-19. On[illegible]mmentator suggested a clarification of proposed new § 23.905(b) noting that the language, "must be designed to give reasonable assurance" would be subject to divergent application. The same language is now used in § 25.905(d)(2), and the FAA believes that experience with this provision in transport category type certification has been satisfactory.

One commentator suggested that a provision similar to § 25.903(d)(1) concerning design precautions to minimize hazards to the airplane in the event of an engine rotor failure be included in proposed §§ 23.903(b), 27.903(c), and 29.903(f). Although several airworthiness directives have been issued to prevent the failure of engine rotors in one engine type, the FAA does not believe that a general requirement for §§ 23.903(b), 27.903(c), or 29.903(f) that is identical to § 25.903(d)(1) is necessary at this time.

Proposal 2-20. No unfavorable comments were received on the proposal to amend § 23.933(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2-21. One commentator objected to proposed new § 23.941 concerning airplanes with variable inlet or exhaust system geometry as being unnecessary and unjustified in Part 23. The FAA agrees that this provision should not be added to Part 23 at this time and is therefore withdrawing the proposal.

Proposal 2-22. One commentator suggested that the proposed changes to §§ 23.971 and 23.999 be revised to require a quick actuation drain valve on each fuel tank. The proposal, however, was not to require new drainage outlets but to establish standards for the drains set forth in proposed § 23.971(b) and present § 23.999(a). The FAA does not have sufficient information to indicate that a need exists for a quick actuation drain valve on each fuel tank considering the large number of different types of fuel tanks which are included on Part 23 airplanes and the use of sediment bowls and chambers. The proposal is therefore adopted without substantive change.

Proposal 2-23. One commentator question the proposed requirement in § 23.977(a)(2) that a turbine engine fuel strainer prevent the passage of any object that could restrict fuel flow or damage any fuel system component. The commentator asserted that a strainer which met this requirement would have an opening so small that ice accumulation with the use of turbine fuels would be a problem. The FAA does not agree. This is identical to the provision in § 25.977(a)(2). Experience with fuel strainers that would meet the proposed standards in § 23.977(a)(2) has shown that a strainer can prevent the passage of the noted objects and also prevent ice accumulation.

One commentator noted that the clear area of each fuel tank outlet strainer should be at least six times the area of the outlet line instead of five times as proposed in § 23.977(b). This provision is identical to § 25.977(c) and the FAA considers that experience with this requirement in Part 25 has been satisfactory.

Proposal 2-24. The intent of the proposal to add a new § 23.979(e) was to provide strength requirements including load factors, applicable to the airplane defueling system to cover surge pressure during defueling. Upon further review the FAA believes that the proposed amendment is premature. Therefore, the proposal is withdrawn.

Proposal 2-25. No unfavorable comments were received on the proposal to amend § 23.995(d). Accordingly, the proposal is adopted without substantive change.

Proposal 2-26. One commentator suggested that there should be sufficient clearance between the quick actuation drain and other parts of the airplane to allow the fuel sample to be drained into a typical, small container. The FAA believes fuel system drains which meet the proposed requirements of paragraphs(b)(1) and (b)(3) of § 23.999, that the drain discharge clear of all parts of the airplane and that it be readily accessible, will have sufficient clearance to allow a fuel sample to be drained into a small container.

One commentator suggested that the requirement in § 23.999(b)(1)) that the drain must discharge clear of all parts of the airplane, would create unnecessary design and construction restraints. The FAA believes that by coating some airplane surfaces with fuel or by trapping quantities of fuel in certain locations a fire hazard exists. This fire hazard should be limited by this proposal. Further, the FAA believes this requirement can be met without an undue restraint on airplane design.

A commentator asserted that the proposed requirement in § 23.999(b)(3), that the drain valve be either located or protected so that it will not be damaged in the event of a landing with landing gear retracted cannot be justified. The commentator noted that the fuel tanks would be ruptured in such a landing and nothing would be gained if the drain was protected. The FAA disagrees, similar fuel tank installation requirements are set forth in § 23.967 and experience indicates that the fuel system can and should be either located or protected to prevent fuel leakage in such a landing. The FAA does agree that the proposal needs to be clarified to more specifically provide a design specification and has, so modified paragraph (b)(3). Also see Proposal 2-70.

Proposal 2-27. No unfavorable comments were received on the proposal to add a new § 23.1093(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-28. Proposed § 23.1111(c) was misunderstood by one commentator who asserted that it is not possible to assure the impossibility of failure of the engine lubricating system. The proposal, however, was directed toward the elimination of hazardous contamination of the cabin air assuming a failure of the engine lubricating system. In consideration of the misunderstanding, the language has been revised to emphasize the prevention of hazardous contamination of cabin air system.

Proposal 2-29. Although no unfavorable comment was received on the proposed § 23.1125, the FAA believes that the proposal could misunderstood as to whether use of the heat exchanger would permit or prohibit the passage of exhaust gases through the exchanger when hot air was not being directed to the area where it was intended to be used. The FAA's intention was to require cooling of the exchanger wherever it was in contact with exhaust gases, regardless of its usage status. The proposal is revised to make this clear using the language of §§ 25.1125(a)(3) and 29.1125(a)(3). The FAA believes that the exhaust heat exchange requirements should be paralleled in Parts 23, 25 and 29. Therefore the proposed changes to §§ 25.1125(a)(3) and 29.1125(a)(3) are withdrawn.

Proposal 2-30. No unfavorable comments were received on the proposal to amend § 23.1143. Accordingly, the proposal is adopted without substantive change.

Proposal 2-31. One commentator believed that proposed § 23.1165(e) was unnecessarily restrictive in requiring all ignition systems to be independent of all other electrical systems. The FAA agrees with respect to reciprocating engines since § 33.37 requires a dual ignition system or an ignition system of equivalent inflight reliability for reciprocating engines and § 23.903 requires each engine installed on small airplanes to be type certificated under Part 33. However, the FAA disagrees with respect to turbine engines since two separate primary electrical circuits are not required in § 33.69. The rule as adopted is applicable to turbine engines installed on small airplanes only.

Proposal 2-32. One commentator objected to the proposal to add a speed warning device for turbopropeller powered airplanes. The FAA believes that due to the characteristics of turbopropeller powered airplanes that make it desirable to operate at the maximum operating limit speed (V_{MO}/M_{MO}), and the increasing preoccupation of pilots with air traffic and other duties which distract them from continuous monitoring of airspeed instruments overspeed conditions can be a problem. Therefore, to insure early warning and thus to make a major portion of the speed margin available for pilot reaction and recovery maneuvers, the amendment requires that the speed warning device must give effective aural warning (differing distinctively from aural warnings used for other purposes) to the pilots whenever the speed exceeds V_{MO} plus 6 knots or $M_{MO}+0.01$.

It should also be noted that the proposal for § 23.1303(d) has been revised to make it like § 25.1303(a)(1) to allow for an air temperature indicator which provides indications that are convertible to free-air temperature.

Proposal 2-33. No unfavorable comments were received on the proposal to amend § 23.1309. Accordingly, the proposal is adopted without substantive change.

Proposal 2-34. One commentator suggested that proposed §§ 23.1322 and 25.1322 concerning warning, caution, and advisory light be revised. The commentator noted that requiring a blue light for position indication was not always appropriate since blue was difficult to see in direct sunlight but was readily distinguishable in heavily shaded installations. The FAA agrees that blue should not be an established standard applicable to all installations. Therefore proposed §§ 23.1322(d), 25.1322(d), 27.1322(d) and 29.1322(d), concerning blue lights, are withdrawn. Also see Proposal 2-82.

Proposal 2-35. The proposed amendments to §§ 23.1325, 25.1325, and 29.1325 concerning the static pressure sources are related to proposed amendments to § 27.1325 that are contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75-10; 40 FR 10812; March 7, 1975) and in Airworthiness Review Program, Notice No. 5: Equipment and System Proposals (Notice 75-23; 40 FR 23048; May 27, 1975). The proposed amendment to § 27.1325 in Notice 75-10 is being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-23. The proposed amendments to §§ 23.1325, 25.1325, and 29.1325 contained in Notice 75-10 are therefore being deferred until final rulemaking action is taken with respect to the related proposed amendments to § 27.1325. Comments submitted for Proposals 2-35, 2-83, and 2-183 will be considered at that time.

Proposal 2-36. One commentator questioned the proposed lead-in for § 23.1331(b). The commentator interpreted the proposal to mean that each instrument must have independent power sources and noted that the explanation did not indicate this to be intended. The FAA agrees that the proposal is not clear, and the proposal is withdrawn.

Proposal 2-37. The proposed change to § 23.1335 concerning the deletion of the section is related to a proposed amendment to § 23.1335 that is contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75-23; 40 FR 23048; May 27, 1975). The proposed amendment to § 23.1335 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-23. Comments submitted for Proposal 2-37 will be considered at that time.

Proposal 2-38. No unfavorable comments were received on the proposal to amend § 23.1351. Accordingly, the proposal is adopted without substantive change.

Proposal 2-39. Proposed § 23.1353(f) concerning nickel-cadmium batteries is related to a proposed amendment to § 23.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.1353 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-39 will be considered at that time.

Proposal 2-40. For comments related to the proposed amendment of § 23.1385, see Proposal 2-69.

Proposal 2-41. One commentator suggested that proposed § 23.1411(b)(2) be revised to conform to the language in § 25.1411(b)(2). The FAA, however, believes a more specific standard is appropriate for §§ 23.1411 and 27.1411. Therefore, the proposed amendments to §§ 23.1411 and 27.1411 are adopted without substantive change.

Proposal 2-42. One commentator suggested that the proposed change to § 23.1549 be revised to accommodate horizontal scale powerplant instruments. The FAA agrees, and §§ 23.1549, 27.1549 and 29.1549, as adopted, will provide marking standards appropriate to circular, horizontal and vertical scale powerplant instruments.

Proposal 2-43. The proposed change to § 23.1555 concerning the information requirements of usable fuel in a restricted use fuel tank is related to a proposed amendment to § 23.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.1555 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-43 will be considered at that time.

Proposal 2-44. The proposed change to § 23.1557 concerning the system voltage marking requirement adjacent to its external power connection is related to a proposed amendment to § 23.1557 that is contained in Airworthiness Review Program, Notice No. 3; Powerplant Proposals (Notice 75-19; 40 FR 21866; May 19, 1975). The proposed amendment to § 23.1557 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-19. Comments submitted for Proposal 2-44 will be considered at that time.

Proposal 2-45. The proposed change to § 23.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 23.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related Proposal in Notice 75-25. Comments submitted for Proposal 2-45 will be considered at that time.

Proposal 2-46. The proposed change to § 23.1587(a)(2) is related to proposed amendments to § 23.1587 that were contained in Airworthiness Review Program, Notice 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 23.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-46 will be considered at that time.

Proposal 2-47. One commentator suggested that considering the proposed deletion of §§ 25.45 through 25.75, current § 25.161(e) will need to be amended to replace the reference to § 25.69. The FAA agrees, and § 25.161(e)(1) is amended by striking the reference to § 25.69 and inserting in place thereof a reference to § 25.123(a). In addition, the FAA has found that § 25.201(c)(1) refers to § 25.49(c)(2)(i) that would also be deleted. Therefore, § 25.201(c)(1) as amended strikes the phrase "§ 25.49(c)(2)(i) for reciprocating engine powered airplanes, or in" and the phrase "for turbine engine powered airplanes".

Proposal 2-48. No unfavorable comments were received on the proposed change to strike the words "turbine powered" from § 25.101(a). Accordingly, proposed § 25.101(a) is adopted without substantive change.

No unfavorable comments were received on proposed § 25.101(b) and it is adopted as proposed except that it is clarified to indicate that the 80% relative humidity for reciprocating engines is based on standard atmospheric temperature (the vapor pressure values in the table in proposed § 25.101(b)(2) correspond to 80% relative humidity with a standard atmosphere).

Proposal 2-49. Based on comments reveived on the proposal to amend § 25.105 and on the related proposals to §§ 25.125, 25.241 and 25.1533(c), and upon further review by the FAA, Proposals 2-49, 2-51, 2-52 and the portion of 2-93 dealing with the new operating limitation requirements for transport category airplanes intended to be used in operations on unpaved runways are withdrawn.

Proposal 2-50. No unfavorable comments were received on the proposal to amend § 25.107. Accordingly, the proposal is adopted without substantive change.

Proposal 2-51. For comments related to the withdrawal of the proposed amendment of § 25.125, see Proposal 2-49.

Proposal 2-52. For comments related to the withdrawal of the proposal to add a new § 25.241, see Proposal 2-49.

Proposal 2-53. No unfavorable comments were received on the proposal to amend § 25.397. Accordingly, the proposal is adopted without substantive change.

Proposal 2-54. For comments related to the proposed amendment of the lead-in of § 25.603, see Proposal 2-11.

Proposal 2-55. No unfavorable comments were received on the proposal to amend § 25.675. Accordingly, the proposal is adopted without substantive change. Also see Proposal 2-13.

Proposal 2-56. No unfavorable comments were received on the proposal to amend § 25.685(a). Accordingly, the proposal is adopted without substantive change. See Proposal 2-109.

Proposal 2-57. No unfavorable comments were received on the proposal to add a new § 25.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-58. One commentator questioned whether the proposed § 25.775(e) would require that there be at least two windshield panels in the windshield for each pilot. The intent of the proposal, however, is to provide at least one windshield panel through which at least one pilot could see if vision was lost through another panel.

Proposal 2-59. Proposed § 25.783(g) concerning integral stairs installed in passenger entry doors that qualify as passenger exits is related to a proposed amendment to § 25.783 that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75-31; 40 FR 29410; July 11, 1975). The proposed amendment to § 25.783(g) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-31. Comments submitted for Proposal 2-59 will be considered at that time.

Proposal 2-60. The proposed change to § 25.785 is related to a proposed amendment to § 25.785 that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75-31; 40 FR 29410; July 11, 1975). The proposed amendment to § 25.785 contained in Notice No. 2 is, therefore, being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-31. Comments submitted for Proposal 2-60 will be considered at that time.

Proposal 2-61. No unfavorable comments were received on the proposed new § 25.787(c). However, based on a comment received on Proposal 2-111, this proposal has been revised to avoid any implication that lamps will be required in cargo compartments.

Proposal 2-62. Four of the five comments received were in favor of the proposal for § 25.815 that would provide for the approval of an aisle width of less than 12 inches, but not less than 9 inches, in transport airplanes with a passenger seating capacity of 10 or less if the aisle width is substantiated by necessary tests. One commentator requested that the proposal be withdrawn because it would result in a reduction in the margin of passenger safety. The FAA disagrees. Service experience with aircraft certificated with less than a 12 inch aisle width in the past has been satisfactory.

Moreover, the FAA will not certificate transport category aircraft with less than a 12 inch aisle width unless the Administrator finds by necessary test that the narrower aisle is safe.

The proposal is adopted without change.

Proposal 2-63. The proposed change to § 25.831 concerning the temperature and ventilation controls for the crew compartment is related to a proposed amendment to § 25.831 that is contained in Airworthiness Review Program Notice No. 5: Equipment and Systems Proposals (Notice 75-23; 40 FR 23048, May 27, 1975). The proposed amendment to § 25.831 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-23. Comments submitted for Proposal 2-63 will be considered at that time.

Proposal 2-64. One commentator recommended that proposed § 25.841(b)(1) be revised to make it clear that the pressure relief function may be combined with the regulating valve. The proposal would delete the requirement that one of the pressure relief valves be a pressure regulating valve, but it would still allow such a design. This was specifically covered in Notice 75-10.

One commentator suggested that the language "passenger or crew compartment" in proposed § 25.841(b)(8) be changed to read "occupiable area in the cabin" to ensure that a pressure sensor is located in the lower deck service compartment. The FAA believes the language "occupiable area in the cabin" does not clarify the proposed requirements. The language "passenger and crew compartment" is not limited to the main deck of the airplane, but includes a lower deck service compartment even though this lower deck service compartment may not be occupied during takeoff and landing. For clarification, the parenthetical "(including upper and lower lobe galleys)" has been added to § 25.841(b)(8) as adopted.

Proposal 2-65. The proposed change to § 25.853 concerning the certification requirements necessary to permit smoking in transport category airplanes is related to a proposed amendment to § 25.853 that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine and Propeller Airworthiness, and Procedural Proposals (Notice 75-31, 40 FR 29410; July 11, 1975). The proposed amendment to § 25.853 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-31. Comments submitted for Proposal 2-65 will be considered at that time.

Proposal 2-66. No unfavorable comments were received on the proposal to amend § 25.933(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2-67. A commentator suggested that a cross-reference to § 25.143 should be added to proposed § 25.941. The FAA agrees that the pilot strength limits now set forth in § 25.143 should be referenced in § 25.941 in order to define appropriately what constitutes "exceptional strength on the part of the pilot". Accordingly, a paragraph (c) has been added to proposed § 25.941 for that purpose.

Proposal 2-68. Two commentators agreed with the intent of the proposed § 25.951(a) concerning fuel system design and operation of the auxiliary power unit (APU) but requested that it be withdrawn to allow time to review other Part 25 provisions for applicability to APU installations. The FAA does not believe that a further review of Part 25 should in this case, delay completion of this rulemaking action. However, if the FAA determines that the language "auxiliary power unit" should be specifically set forth in other provisions to avoid misinterpretation, the FAA will take action to clarify these provisions.

One commentator stated that the fuel system for an APU operated on the ground would be unnecessarily subject to the same requirement as the engine fuel system. The FAA does not agree that this is necessary. If certain operating conditions are the same for both the engine fuel system and the APU fuel system, the FAA believes that the requirements during such periods should be the same. The proposal is therefore adopted without substantive change.

Proposal 2-69. One commentator suggested that the language "proof and ultimate factors" in the proposal for new paragraphs (d) and (e) of § 25.979 be revised to be consistent with § 25.301. The FAA agrees that the terminology should be consistent and the section as adopted is reworded to use the term ultimate load.

One commentator questioned whether the design criteria for the pressure fueling system was applicable to fuel tanks and fuel tank vents. The proposed amendment to § 25.979 was not intended to apply to fuel tanks and vents. The section as adopted has been revised to make this clear.

Proposal 2-70. Several commentators questioned the meaning of the term "quick actuation drain valve" in proposed § 25.999(b)(3). The FAA agrees that the term may be subject to misinterpretation and that the provision is complete without the words "quick actuation".

One commentator asserted that the proposed requirement in § 25.999(b)(3) that the drain valve not be damaged in the event of a landing with landing gear retracted was not a proper design specification since damage was beyond the control of the manufacturer. The FAA agrees that the language "so that it will not be damaged" is not proper for this requirement, but the FAA believes that the valve, the location of the valve, or both, can be designed to prevent fuel spillage, assuming that a landing is made with the landing gear retracted. The section as adopted has been revised to clarify this intent.

Proposal 2–71. One commentator suggested that proposed § 25.1027(d) be revised to limit the design consideration to sludge or other foreign matter entering the feathering system from the oil tank. The FAA disagrees. Design consideration and flexibility should not be limited to preventing entry of material into the feathering system. All sources of sludge and foreign matter must be considered since the purpose of the regulation is the safe operation of the propeller feathering system. The proposal, therefore is adopted without substantive change.

Proposal 2–72. One commentator suggested that the word "critical" be added before the language "ground, water, and flight operating conditions" in the proposal for § 25.1041, but no reason was given. As noted in the explanation to this proposal, § 25.1041 contains a general cooling requirement, while §§ 25.1043 and 25.1045 are more specific with respect to the type of operating conditions which must be considered during tests. Critical conditions are included in the test requirements of §§ 25.1043 and 25.1045. However, the FAA believes that cooling provisions must be adequate under all ground, water, and flight operating conditions.

Proposal 2–73. No unfavorable comments were received on the proposal to amend § 25.1091(c)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 2–74. One commentator agreed with the proposal for § 25.1093 but suggested that the proposal be changed to agree with the format of the previous paragraphs. The FAA agrees, and the proposal as adopted has been structured the same as the previous paragraphs.

Proposal 2–75. One commentator objected to the proposed lead-in for § 25.1125 that limited the applicability of the section to reciprocating engines. The FAA does not believe that the requirements of this section are applicable to other than reciprocating engine powered airplanes. While some early turbine powered airplanes have had an ejector installation in the exhaust stream to pull cooling air through the nacelle, the FAA does not consider this to be an exhaust heat exchanger within the meaning of the language of § 25.1125. Therefore, the proposed lead-in for § 25.1125 is adopted without substantive change.

Proposed § 25.1125(a)(3) is withdrawn. For a discussion of the withdrawal, see Proposal 2–29.

Proposal 2–76. A commentator stated that the phrase "automatically controlled with relation to the amount of power produced by the engine" in proposed § 25.1143(d) is not appropriate for all fluid injection systems. The FAA agrees that the phrase is not appropriate for certain turbine engine powered airplanes and that further revision of § 25.1143(d) should be considered. Proposed § 25.1143(d) has therefore been withdrawn for further study.

No unfavorable comment was received concerning proposed § 25.1143(e) and this paragraph has been adopted without substantive change.

Proposal 2–77. No unfavorable comments were received on the proposal to add a new § 25.1167. Accordingly, the proposal is adopted without substantive change.

Proposal 2–78. No unfavorable comments were received on the proposal to amend § 25.1197(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–79. One commentator suggested that proposed § 25.1303(a)(2) be revised to clarify the method of clock indication which would be permitted under the regulation. The FAA agrees that the intent of the proposal was only to recognize the development of accurate digital clocks and that the minimum information presented should be the same. Proposed §§ 25.1303(a)(2) and 29.1303(d) as adopted are revised to make this clear.

Proposal 2-80. Several commentators suggested that the proposed change to § 25.1305 be revised to except anti-detonant injection (ADI) systems from the powerplant instrument proposal for fluid augmentation systems. The commentators expressed the opinion that the proposal for § 25.1143(d) concerning automatic controls for fluid injection systems (other than fuel) eliminated the need for a powerplant instrument for the ADI system. The FAA believes that the flight crew should be able to monitor the proper functioning of any fluid system that is used for thrust or power augmentation and the section as adopted is applicable to ADI systems. However, the section has been clarified to ensure application only to fluids systems that are used for thrust or power augmentation.

Proposal 2-81. No unfavorable comments were received on the proposal to amend § 25.1309. Accordingly, the proposal is adopted without substantive change.

Proposal 2-82. One commentator questioned the proposed color standardization of warning, caution, and advisory lights in new § 25.1322. The commentator stated "arbitrary standards for specific light colors cannot always be stated" because of the design objective to minimize red lights that require immediate crew action and of the need to consider past experience, test, crew acceptance, and the specific application. The FAA agrees that considerations other than the need for standardization of light colors may dominate in special circumstances, and the section as adopted provides for approval by the Administrator of light colors that are different than the standard. As stated by the commentator and in the section as adopted, a design objective is to have red warning lights only if a hazard is to be indicated which may require immediate corrective action.

One commentator noted that the language "warning light" is used in other sections of the regulations, such as § 25.812(e)(2), and a hazard which may require immediate corrective action will not be indicated. The FAA does not agree; the light noted in § 25.812(e)(2) should be red in future designs unless otherwise approved by he Administrator. The FAA believes that in other sections, if the language "warning light" is used, it is consistent with proposed new § 25.1322. However, if the language "warning light" is determined to be not generally applicable, later rulemaking action can be instituted.

One commentator suggested a clarification of the lead-in of the proposal to limit its applicability to lights installed in the cockpit as indicated in the explanation to the proposal. The FAA agrees, and the lead-ins of §§ 23.1322, 25.1322, 27.1322, and 29.1322 have been clarified.

Also see Proposal 2-34 for a discussion of the withdrawal of the blue light proposal.

Proposal 2-83. For comments related to the deferral of proposed § 25.1325(g), see Proposal 2-35.

Proposal 2-84. The proposed change to § 25.1329 concerning the redesignation of § 25.1329 as § 25.1311 and the addition of provisions for automatic flight control systems is related to a proposed amendment to § 25.1329 that is contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75-23; 40 FR 23048, May 27, 1975). The proposed amendment to § 25.1329 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-23. Comments submitted for Proposal 2-84 will be considered at that time.

Proposal 2-85. Proposed § 25.1331(a)(2) concerning instruments using a power supply is related to proposed amendments to §§ 25.1331 and 25.1333 that are contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75-23; 40 FR 23048; May 27, 1975). The proposed amendment to § 25.1331(a)(2) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposals in Notice 75-23. Comments submitted for Proposal 2-85 will be considered at that time.

Proposal 2-86. Proposed § 25.1337(a) concerning auxiliary power unit instrument lines is related to a proposed amendment to § 25.1337(a) that is contained in Airworthiness Review Program, Notice No. 3: Powerplant Proposals (Notice 75-19; 40 FR 21866; May 19, 1975). The proposed amendment to § 25.1337(a) contained in Notice No. 2 is therefore deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-19. Comments submitted for Proposal 2-86 will be considered at that time.

Proposal 2-87. Proposed § 25.1353(c)(5) is related to a proposed amendment to § 25.1585 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 25.1353(c)(5) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-87 will be considered at that time.

Proposal 2-88. No unfavorable comments were received on the proposal to amend § 25.1355(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-89. Several commentators suggested that the list of factors to consider for locating forward and rear position lights in proposed §§ 23.1385, 25.1385, 27.1385, and 29.1385 was incomplete.

Two commentators, also suggested that proposed §§ 23.1385(c) and 25.1385(c) be revised to permit a new position light to be installed on each wing tip. The FAA agrees that further study is necessary to develop factors of general applicability for position lights on all aircraft but that a rear position light as far aft as practical on each wing tip of an airplane is a reasonable alternative location. Accordingly, proposed §§ 23.1385(c) and 25.1385(c) have been revised. The proposals concerning the list of factors to be considered for locating forward and rear position lights in § 25.1385 and paralleled in proposed §§ 23.1385, 27.1385, and 29.1385 are withdrawn. However, the deletion of the passing light requirement from current § 25.1385(e) will be made.

Proposal 2-90. One commentator asserted that proposed new § 25.1403 was an operating requirement, not an airworthiness requirement and therefore was not appropriate for Part 25. Although a similar requirement currently exists in § 121.341(b), the FAA believes that such a requirement should be applicable to all newly certificated transport category airplanes.

Two commentators pointed out that the proposal differs from § 121.341(b) in that the proposal was not limited to the area of the wings that are critical from the standpoint of ice accumulation. The FAA agrees, and the section as adopted has been revised accordingly.

A comment was also received that expressed the belief that under the proposal, illumination or other means of ice detection would not be necessary if the wing was shown to have acceptable ice accumulation characteristics. The FAA does not agree. Unless an operating limitation prohibits operations at night in known or forecast icing conditions, the means set forth are required.

Proposal 2-91. Several commentators said that the proposed change to § 25.1439(b)(2)(ii) concerning standards for masks and eye coverings was premature in view of the current testing being conducted on this type of equipment by the FAA. The FAA agrees that this proposed amendment is premature, and new standards are being considered for a later rulemaking action. The proposed change to § 25.1439(b)(2)(ii) is therefore withdrawn.

No favorable comments were received on the proposal to amend paragraph (a) of § 25.1439. Accordingly, the proposal is adopted without substantive change.

Proposal 2-92. No unfavorable comments were received on the proposal to amend § 25.1515. Accordingly, the proposal is adopted without substantive change.

Proposal 2-93. No unfavorable comments were received on the proposal to amend the heading of § 25.1533 and on the proposal to amend § 25.1533(a). Accordingly, this amendment is adopted without substantive change. For comments related to the withdrawal of the proposed new § 25.1533(c), see Proposal 2-49.

Proposal 2-94. The proposed change to § 25.1549 concerning the marking requirements for powerplant instruments is related to a proposed amendment to § 25.1549 that is contained in Airworthiness Review Program, Notice No. 3: Powerplant Proposals (Notice 75-19; 40 FR 21866; May 19, 1975). The proposed amendment to § 25.1549 contained in Notice No. 2 is therefore deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-19. Comments submitted for Proposal 2—94 will be considered at that time.

Proposal 2-95. One commentator took exception to the proposed deletion of the requirement for marking fuel and oil tank capacities at the filler openings in § 25.1557(b). The FAA believes this method of providing the usable fuel tank capacity and the oil tank capacity is no longer necessary. The pilot has the fuel quantity gage and the Airplane Flight Manual, and the servicing personnel usually have no interest in the usable fuel tank capacity. The determination of oil level in oil tanks is usually accomplished with the dipstick. Accordingly, the proposal is adopted without substantive change.

Proposal 2-96. The proposed change to § 25.1581 concerning the Airplane Flight Manual is related to proposed amendment § 25.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 25.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-96 will be considered at that time.

Proposal 2-97. No unfavorable comments were received on the proposal to amend § 25.1583. Accordingly, the proposal is adopted without substantive change.

Proposal 2-98. The proposed change to § 25.1587 concerning performance information is related to a proposed amendment to § 25.1587 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 25.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-98 will be considered at that time.

Proposal 2-99. Two commentators questioned the applicability of proposed § 27.25(c) concerning a total weight that was greater than the maximum weight established under § 27.25(a) and noted that a clarification of the applicable flight requirements was needed. The FAA agrees that proposed § 27.25(c) should be clarified. Proposed §§ 27.25(c) and 29.25(c) are intended to provide only a total weight standard for approving the rotorcraft structure for rotorcraft that will be operated under Part 133. Proposed §§ 27.25(c) and 29.25(c) as adopted have been revised to clarify this intent.

Proposal 2-100. Proposed § 27.65(a)(2)(i) concerning climb gradients for rotorcraft other than helicopters is related to a proposed new § 27.1587(b)(3) that is contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75-10; 40 FR 10802; March 7, 1975). The proposed amendment to § 27.1587 contained in Notice 75-10 is being deferred; see Proposal 2-140. Therefore, the proposed amendment to § 27.65 contained in Notice 75-10 is also deferred until final rulemaking action is taken with respect to the related proposal for § 27.1587. Comments submitted for Proposal 2-100 will be considered at that time.

Proposal 2-101. No unfavorable comments were received on the proposal to amend § 27.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2-102. No unfavorable comments were received on the proposal to amend § 27.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2-103. No unfavorable comments were received on the proposal to amend § 27.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2-104. No unfavorable comments were received on the proposal to amend § 27.321(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2-105. No unfavorable comments were received on the proposal to amend § 27.339. Accordingly, the proposal is adopted without substantive change.

Proposal 2-106. Two commentators suggested that the limit pilot torque for rotorcraft twist controls in proposed §§ 27.397(b)(2) and 29.397(b)(2) should be 80 times the radius (R) in inches instead of 133 inch-pounds, as proposed. The FAA agrees that the pilot torque load requirements should be a function of the radius (R). Also the FAA does not expect the radius (R) of any twist control installed on any rotorcraft type certificated in the future to be greater than 133/80 inches. Therefore, the proposals as adopted revise the limit pilot torque load to 80R inch-pounds.

Proposal 2-107. No unfavorable comments were received on the proposal to add a new § 27.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2-108. No unfavorable comments were received on the proposal to amend § 27.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2-109. One commentator disagreed with proposed §§ 27.685(a) and 29.685(a) that would require the consideration of the effects of the freezing of moisture on control systems since §§ 27.685(a) and 29.685(a) currently require that control systems be designed to prevent jamming. While the explanation for this proposal indicated that the freezing of moisture was a common cause of control jamming, the proposal is also directed at preventing chafing and interference caused by the freezing of moisture. Accordingly, the proposals are adopted without substantive change.

Proposal 2-110. No unfavorable comments were received on the proposal to add a new § 27.733(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-111. Based on a comment received, the proposed change to § 27.787 has been revised to avoid any implication that lamps will be required in cargo compartments.

Proposal 2-112. No unfavorable comments were received on the proposal to add a new § 27.801. Accordingly, the proposal is adopted without substantive change.

Proposal 2-113. Several commentators stated that the ditching emergency exit standards proposed for §§ 27.807(d) and 29.807 should not be applicable to all rotorcraft. The commentators noted that the new standards would unnecessarily penalize rotorcraft that would never be involved in a ditching situation. The FAA agrees that certain rotorcraft may not operate in areas where ditching is a concern. Compliance with the ditching emergency exit standards should not be required for all rotorcraft during type certification. Therefore, the proposals as adopted have been revised to make it applicable only to rotorcraft for which ditching certification is requested. The overhead hatch requirements proposed in new §§ 27.807(d)(2) and 29.807(d)(3) are withdrawn because of the possible hazards associated with a turning main rotor. In addition, the reference in proposed § 27.807(d) to § 27.807(a) has been deleted as unnecessary, and the reference in proposed § 29.807(d) to § 29.807(c) has been deleted as inappropriate.

Proposal 2-114. For comments related to the proposed amendment of § 27.853, see Proposal 2-18.

Proposal 2-115. Upon further FAA review proposed §§ 27.865(a) and 29.865(a) concerning external load attaching means have been revised to preclude the necessity of considering the application of an external load at angles that will not be obtained in service. One commentator objected to the requirement for a manual mechanical control for the quick-release device. The commentator stated that this requirement was too restrictive due to the other standby electrical systems available. The FAA does not agree. Contrary to the commentator's contention the reliability of controls other than manual mechanical controls have not been sufficiently substantiated to permit their use in place of an manual mechanical control.

Proposal 2-116. One commentator objected to the proposals to add new standards concerning turbine engine installations to §§ 27.903 and 29.903 that would be substantively identical to proposed § 23.903(b). The commentator requested that the proposals be withdrawn since helicopter service experience does not indicate that such a standard is necessary and due consideration has not been given to the differences between helicopter and airplane engine control systems. The FAA disagrees. While there are differences between helicopter and airplane engine installations, the FAA believes that the proposals would provide general design requirements relating to engine operating limitations and engine installation requirements and that these engine installation requirements should be paralleled in Parts 23, 27, and 29. Also see Proposal 2-19.

Proposal 2-117. For comments concerning proposed § 27.917(d), see Proposal 2-163.

Proposal 2-118. The proposed change to § 27.927 concerning the torque transmission test is related to a proposed amendment to § 27.927 that is contained in Airworthiness Review Program, Notice No. 3: Powerplant Proposals (Notice 75-19; 40 FR 21866; May 19, 1975). The proposed amendment to § 27.927 contained in Notice No. 2 is therefore deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-19. Comments submitted for Proposal 2-118 will be considered at that time.

Proposal 2-119. No unfavorable comments were received on the proposal to add a new § 27.939(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–120. No unfavorable comments were received on the proposal to amend § 27.977. Accordingly, the proposal is adopted without substantive change.

Proposal 2–121. Two commentators objected to the proposals to amend §§ 27.999(b) and 29.999(b) to require the installation of quick actuation type drain valves that are readily accessible, which can be easily opened and closed, and is either located or protected so that it will not be damaged in the event of a landing with landing gear retracted. The commentators stated that the requirement to include crash landing consideration is not considered appropriate since there are a great number of other areas which must be covered in crash landing conditions. The proposals, however, would require that the fuel system drain valves be either located or protected so that it will not be damaged in the event of a landing with landing gear retracted. There are no requirements in the proposal for consideration of crash landing conditions.

In consideration of comments discussed under Proposals 2–26, and 2–70, §§27.999(b)(3)(ii) and 29.999(b)(3)(ii), as adopted, have been clarified to more specifically provide a design consideration.

See Proposals 2–26 and 2–70.

Proposal 2–122. No unfavorable comments were received on the proposal to amend § 27.1043(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2–123. No unfavorable comments were received on the proposal to add a new § 27.1093(c). The proposal as adopted has been editorially changed to agree with the format of the current section.

Proposal 2–124. No unfavorable comments were received on the proposal to add a new § 27.1123. Accordingly, the proposal is adopted without substantive change.

Proposal 2–125. No unfavorable comments were received on the proposal to add a new § 27.1143(d), and the proposal is adopted without substantive change. However, the heading of § 27.1143 has been amended to reflect the contents of the section after the adoption of a new paragraph (d).

Proposal 2–126. No unfavorable comments were received on the proposal to amend § 27.1185. Accordingly, the proposal is adopted without substantive change.

Proposal 2–127. For comments related to proposed amendment of § 27.1322, see Proposals 2–34 and 2–82.

Proposal 2–128. The proposed change to § 27.1325 concerning the static pressure sources is related to a proposed amendment to § 27.1325 that is contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems. Proposals (Notice 75–23; 40 FR 23048; May 27, 1975). The proposed amendment to § 27.1325 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–23. Comments submitted for Proposal 2–128 will be considered at that time.

Proposal 2–129. The proposal for a new § 27.1329 concerning the standards for automatic pilot systems is related to a proposed new § 27.1311 that is contained in Airworthiness Review Program, Notice No. 5: Equipment and System Proposals (Notice 75–23; 40 FR 23048; May 27, 1975). The proposal for § 27.1329 contained in Notice No. 2 is therefore being deferred until final rulemaking is taken with respect to the related proposal in Notice 75–23. Comments for Proposal 2–129 will be considered at that time.

Proposal 2–130. No unfavorable comments were received on the proposal to amend § 27.1351. Accordingly, the proposal is adopted without substantive change.

Proposal 2–131. Proposed § 27.1353(f) concerning nickel-cadmium batteries is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75–25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1353(f) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75–25. Comments submitted for Proposal 2–131 will be considered at that time.

Proposal 2–132. For comments related to the proposed amendment of § 27.1385 and the withdrawal of the proposal, see Proposal 2–89.

Proposal 2–133. No unfavorable comments were received on the proposal to amend § 27.1411. Accordingly, the proposal is adopted without substantive change.

Proposal 2-134. No unfavorable comments were received on the proposal to amend § 27.1415(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2-135. The proposed change to § 27.1545 concerning the V_{ne} requirements is related to a proposed amendment to § 27.1505 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24064; June 9, 1975). The proposed amendment to § 27.1545 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-135 will be considered at that time.

Proposal 2-136. For comments related to the proposed amendment of § 27.1549, see Proposal 2-42.

Proposal 2-137. No unfavorable comments were received on the proposal to amend § 27.1555(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-138. No unfavorable comments were received on the proposal to amend § 27.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-139. The proposed change to § 27.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1581 contained in Notice No. 2 is therefore being deferred until final reulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-139 will be considered at that time.

Proposal 2-140. The proposed change to § 27.1587 is related to a proposed amendment to § 27.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 27.1587 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-140 will be considered at that time.

Proposal 2-141. One commentator suggested that the proposed new § 29.25(c) provisions be limited to category B rotorcraft. However no reason for the suggestion was stated. The FAA knows of no reason why the proposed provisions should be limited to category B rotorcraft. One commentator questioned the applicability of proposed new § 29.25(c) and noted that a clarification of the applicable flight requirements was needed. For discussion of this and other comments related to the proposed new § 29.25(c), see Proposal 2-99.

Proposal 2-142. No unfavorable comments were received on the proposal to amend § 29.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2-143. Several commentators recommended that § 29.67(a)(1) be revised by adding the term "at V_{TOSS}" following the words "feet per minute", and by deleting the phrase "without ground effect". Although paragraph (a)(1)(iv) of § 29.67 as proposed defines the speed to be used in meeting the climb requirements of § 29.67(a)(1) as the takeoff safety speed, the FAA does not believe that the term "V_{TOSS}" is appropriate. Also the FAA does not agree that the phrase "without ground effect" should be deleted from § 29.67(a)(1). The FAA requires that all climb performance be conducted outside the influence of ground effect. Accordingly, the proposal is adopted without substantive change.

Proposal 2-144. No unfavorable comments were received on the proposal to amend § 29.71. Accordingly, the proposal is adopted without substantive change.

Proposal 2-145. No unfavorable comments were received on the proposal to amend § 29.75(b)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 2-146. No unfavorable comments were received on the proposal to amend § 29.141. Accordingly, the proposal is adopted without substantive change.

Proposal 2-147. No unfavorable comments were received on the proposal to amend § 29.173(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2-148. No unfavorable comments were received on the proposal to amend § 29.175(d)(2)(iv). Accordingly, the proposal is adopted without substantive change.

Proposal 2-149. For comments related to the proposed amendment of § 29.397, see Proposal 2-106.

Proposal 2-150. No unfavorable comments were received on the proposal to add a new § 29.563. Accordingly, the proposal is adopted without substantive change.

Proposal 2-151. No unfavorable comments were received on the proposal to amend § 29.603. Accordingly, the proposal is adopted without substantive change.

Proposal 2-152. For comments related to the proposed amendment of § 29.685(a), see Proposal 2-109.

Proposal 2-153. No unfavorable comments were received on the proposal to add a new § 29.733(c). Accordingly, the proposal is adopted without substantive change..

Proposal 2-154. The proposed change to § 29.783 concerning the requirements applicable to "airstair doors" in transport category rotorcraft is related to proposed amendments to § 25.783 that are contained in Airworthiness Review Program, Notice No. 2: Miscellaneous Proposals (Notice 75-10; 40 FR 10802; March 7, 1975) and in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75-31; 40 FR 29410; July 11, 1975). The proposed amendment to § 25.783 contained in Notice 75-10 is being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-31. The proposed amendment to § 29.783 contained in Notice 75-10 is therefore being deferred until final ruelmaking action is taken with respect to the related proposal for § 25.783. Comments submitted for Proposal 2-154 will be considered at that time.

Proposal 2-155. No unfavorable comments were received on the proposed new § 29.787(d). However, based on a comment received on Proposal 2-111, this proposal has been revised to avoid any implication that lamps will be required in cargo compartments.

Proposal 2-156. No unfavorable comments were received on the proposal to add a new § 29.801. Accordingly, the proposal is adopted without substantive change.

Proposal 2-157. For comments related to the proposed amendment § 29.807, see Proposal 2-113.

Proposal 2-158. No unfavorable comments were received on the proposal to add a new § 29.813(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-159. One commentator objected to the proposed change to § 29.815 for the same reasons as presented for the proposed change to § 25.815. The discussion of § 25.815 in Proposal 2-62 deals with this comment.

Proposal 2-160. For comments related to the proposed amendment of § 29.853, see Proposal 2-18.

Proposal 2-161. For comments related to the proposed new § 29.865, see Proposal 2-115.

Proposal 2-162. No unfavorable comments were received on the proposal to amend § 29.903(c)(1). Accordingly, the proposal is adopted without substantive change. For comments related to the proposal to add new standards concerning turbine engine installation, see Proposals 2-19 and 2-116.

Proposal 2-163. The only public comment received in response to proposed §§ 27.917(d) and 29.917(a) recommended that the present language in § 29.917(a) be used but gave no reason for the recommendation. The FAA believes that there should be a positive description of the cooling fans that must be considered as part of the rotor drive system. Accordingly, the proposals are adopted without substantive change.

Proposal 2-164. The proposed change to § 29.927 concerning the torque transmission test time is related to a proposed amendment to § 29.927 that is contained in Airworthiness Review Program, Notice No. 8: Aircraft, Engine, and Propeller Airworthiness, and Procedural Proposals (Notice 75-31; 40 FR 29410, July 11, 1975). The proposed amendment to § 29.927 contained in Notice No. 2 is therefore deferred until final rulemaking section is taken with respect to the related proposal in Notice 75-31. Comments submitted for Proposal 2-164 will be considered at that time.

Proposal 2-165. No unfavorable comments were received on the proposal to amend § 29.931. Accordingly, the proposal is adopted without substantive change.

Proposal 2-166. No unfavorable comments were received on the proposal to add a new § 29.939(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-167. No unfavorable comment was received on the proposal to amend § 29.951(a). Accordingly, the proposal is adopted without substantive change. Also see proposal 2-68.

Proposal 2-168. No unfavorable comments were received on the proposal to amend § 29.997. Accordingly, the proposal is adopted without substantive change.

Proposal 2-169. Based on comments concerning proposed changes to § 25.979, proposed new paragraphs (d) and (e) of § 29.979 have also been revised. See Proposal 2-69 for a discussion of the amendment to § 25.979.

Proposal 2-170. One commentator objected to the proposal to § 29.999 on the basis that the helicopter accident records do not show "any great number due to operators not draining fuel sumps." The FAA believes that this low accident rate due to water contamination in the fuel exists because most helicopters already use quick actuation drain valves.

On commentator questioned the need for proposed § 29.999(b) noting that current § 29.971(d) appears to have the same requirement. The FAA agrees that current § 29.971(d) would be redundant for fuel tank sump drains and has therefore deleted the standards for the fuel tank slump drain in § 29.971(d).

The fuel drain standards in § 29.999(b) as proposed are applicable to each drain required by § 29.999(a) including the drains prescribed in § 29.971, but to avoid misinterpretation the section as adopted is clarified to specifically note the fuel tank sump drains prescribed in § 29.971.

Also see Proposals 2-26, 2-70, and 2-121.

Proposal 2-171. One commentator stated that proposed § 29.1041(a) should be revised to except "ground use only" auxiliary power units (APU's). The FAA disagrees. APU's that are permitted to operate only on the ground have inadvertently continued to operate in flight. Safe operation of APU's requires consideration of ground, water, and flight operating conditions. The proposal is therefore, adopted without substantive change.

Proposal 2-172. No unfavorable comments were received on the proposals to amend § 29.1043(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-173. No unfavorable comments were received on the proposal to add a new § 29.1093(c). The proposal as adopted has been editorially changed to agree with the format of the current section.

Proposal 2-174. For comments related to the proposed amendment of § 29.1125, see Proposals 2-29 and 2-75.

Proposal 2-175. No unfavorable comment was received on the proposal to amend § 29.1143 and the proposal is adopted without substantive change. However, the heading of § 29.1143 has been amended to reflect the contents of the section after the addition of a new paragraph (e).

Proposal 2-176. No unfavorable comments were received on the proposal to amend § 29.1165(f). Accordingly, the proposal is adopted without substantive change.

Proposal 2-177. Two commentators objected to the selective use of Part 33 requirements in the proposal for a new § 29.1167 that would provide substantiation requirements for accessory gearboxes that are not certificated as part of an engine. The FAA proposed to amend Part 29 like Part 25 for consistency. The FAA now believes that the proposed new § 29.1167 is inappropriate in view of the requirements to substantiate the rotor drive system including gearboxes under the rotor drive system endurance test requirements. Therefore, proposed new § 29.1167 is withdrawn.

Proposal 2-178. No unfavorable comments were received on the proposal to amend § 29.1189(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2-179. No unfavorable comments were received on the proposal to amend § 29.1197(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2-180. For comments related to the proposed amendment of § 29.1303(d), see Proposal 2-79.

Proposal 2-181. No unfavorable comments were received on the proposal to amend § 29.1307. Accordingly, the proposal is adopted without substantive change.

Proposal 2-182. For comments related to proposed amendment of § 29.1322, see Proposals 2-34 and 2-82.

Proposal 2-183. For comments related to the deferral of proposed § 29.1325, see Proposal 2-35.

Proposal 2-184. The proposed change to § 29.1329 concerning automatic pilot systems is related to a proposed new § 29.1311 that is contained in Airworthiness Review Program, Notice No. 5: Equipment and Systems Proposals (Notice 75-23; 40 FR 23048; May 27, 1975)). The proposal for § 29.1329 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-23. Comments submitted for Proposal 2-184 will be considered at that time.

Proposal 2-185. The proposed change to § 29.1337 concerning the auxiliary power unit instrument lines is related to a proposed amendment to § 29.1337 that is contained in Airworthiness Review Program, Notice No. 3: Powerplant Proposals (Notice 75-19; 40 FR 21866, May 19, 1975). The proposed amendments to § 29.1337 contained in Notice No. 2 is therefore deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-19. Comments submitted for Proposal 2-185 will be considered at that time.

Proposal 2-186. Proposed § 29.1353(c)(5) concerning nickel-cadium batteries is related to a proposed amendment to § 29.1585 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1353(c)(5) contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-186 will be considered at that time.

Proposal 2-187. For comments related to the proposed amendment of § 29.1385 and the withdrawal of the proposal, see Proposal 2-89.

Proposal 2-188. The proposal for § 29.1545 concerning the V_{ne} requirements is related to a proposed amendment to § 29.1505 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1545 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-188 will be considered at that time.

Proposal 2-189. For comments related to the proposed amendment of § 29.1549, see Proposal 2-42.

Proposal 2-190. No unfavorable comments were received on the proposal to amend § 29.1555(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-191. No unfavorable comments were received on the proposal to amend § 29.1557(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-192. The proposed change to § 29.1581 concerning the Airplane Flight Manual is related to a proposed amendment to § 29.1581 that is contained in Airworthiness Review Program, Notice No. 6: Flight Proposals (Notice 75-25; 40 FR 24664; June 9, 1975). The proposed amendment to § 29.1581 contained in Notice No. 2 is therefore being deferred until final rulemaking action is taken with respect to the related proposal in Notice 75-25. Comments submitted for Proposal 2-192 will be considered at that time.

Proposal 2-193. No unfavorable comments were received on the proposal to amend § 31.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2-194. No unfavorable comments were received on the proposal to amend §§ 31.11 and 31.20. Accordingly, the proposal is adopted without substantive change.

Proposal 2-195. No unfavorable comment was received on the proposal to add a new § 31.14 concerning weight limits of manned free balloons. Therefore, the section is adopted without substantive change.

Proposal 2-196. No unfavorable comments were received on the proposal to amend § 31.45. Accordingly, the proposal is adopted without substantive change.

Proposal 2-197. No unfavorable comments were received on the proposal to add a new § 31.46. Accordingly, the proposal is adopted without substantive change.

Proposal 2–198. No unfavorable comments were received on the proposal to amend § 31.63. Accordingly, the proposal is adopted without substantive change.

Proposal 2–199. No unfavorable comments were received on the proposal to amend § 31.85. Accordingly, the proposal is adopted without substantive change.

Proposal 2–200. No unfavorable comments were received on the proposal to amend § 33.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–201. No unfavorable comments were received on the proposal to amend § 35.1. Accordingly, the proposal is adopted without substantive change.

Proposal 2–202. No unfavorable comments were received on the proposal to amend § 35.39. Accordingly, the proposal is adopted without substantive change.

Proposal 2–203. No unfavorable comments were received on the proposal to amend § 35.41(e). Accordingly, the proposal is adopted without substantive change.

Proposal 2–204. No unfavorable comments were received on the proposal to amend § 35.45(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–205. No unfavorable comments were received on the proposal to amend § 91.14. Accordingly, the proposal is adopted without substantive change.

Proposal 2–206. No unfavorable comments were received on the proposal to amend § 91.21(a). Accordingly, the proposal is adopted without substantive change.

Proposal 2–207. One commentator suggested that the proposed change to § 91.33(d)(6) concerning clock requirements should use the language of § 121.305. The FAA believes that a standard should be specified in § 91.33(d)(6) for digital clocks and the proposal as adopted provides a specific standard. See Proposal 2–79.

Proposal 2–208. The intent of the proposed new § 91.193(g) is to require protective breathing equipment that would meet the standards proposed for § 25.1439(b) on certain airplanes operated under Part 91 Subpart D. Based on the current testing being conducted on this type of equipment, the FAA is developing new standards for a later rulemaking action. The proposal for § 25.1439(b)(2)(ii) is being withdrawn (See Proposal 2–91). Therefore, the FAA believes that the proposal for § 91.193 is premature, and the proposal is withdrawn.

Proposal 2–209. Although no unfavorable comment was received on the proposed revision of § 91.209, the FAA believes that revision of similar ice protection provision in § 135.85 may be necessary. Amendments to §§ 91.209 and 135.85 should be considered together. Therefore, the proposed change to § 91.209 is withdrawn.

Proposal 2–210. No unfavorable comments were received on the proposal to amend § 121.171(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2–211. No unfavorable comments were received on the proposal to amend § 121.199. Accordingly, the proposal is adopted without substantive change.

Proposal 2–212. No unfavorable comments were received on the proposal to amend §§ 121.331(b) and 121.333(b). Accordingly, the proposal is adopted without substantive change.

Proposal 2–213. The intent of proposed § 121.337(d) is to require protective breathing equipment that would meet the proposed requirements of § 25.1439(b) installed in certain airplanes operated under Part 121. However, proposed § 25.1439(b)(2)(ii) is withdrawn in this notice. Based on the current testing being conducted on this type of equipment, the FAA is developing new standards for a later rulemaking action. The FAA therefore believes that the proopsed change to § 121.337 is premature and the proposal is withdrawn. Also see Proposal 2–91.

Proposal 2–214. No unfavorable comments were received on the proposal to amend § 127.105. Accordingly, the proposal is adopted without substantive change.

Proposal 2–215. No unfavorable comments were received on the proposal to add a new § 127.106. Accordingly, the proposal is adopted without substantive change.

Proposal 2–216. One commentator objected to the proposed amendment to § 133.1. The commentator stated that the proposal specifically eliminates the reference to airworthiness certification rules when, in fact, Subpart D is retained intact except for the standards for external-load attaching means and quick-release devices. The FAA agrees that reference to airworthiness requirements should not be deleted without other changes to Part 133, and the proposal is withdrawn.

Proposal 2-217. One commentator objected to the proposed amendment to § 133.41 (c)(6). However no reason for the objection was stated. The proposal is therefore adopted herein without substantive change.

Proposal 2-218. One commentator requested that proposed § 133.43(a) be revised to provide for the use of external-load attaching means previously approved under Part 133. The FAA agrees and proposed § 133.43 is revised accordingly.

Proposal 2-219. No unfavorable comments were received on the proposal to amend § 133.45(c). Accordingly, the proposal is adopted without substantive change.

Proposal 2-220. No unfavorable comments were received on the proposal to amend § 135.71(a)(5). Accordingly, the proposal is adopted without substantive change.

Proposal 2-221. Based upon further review by the FAA proposed § 135.165(b)(2) is being withdrawn because contrary to the explanation for the proposal in Notice 75-10, the proposal would result in unjustifiably different standards for transport category airplanes operated under Part 135 and those operated under Part 121.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, and for the reasons stated in Notice 75-10, Parts 21, 23, 25, 27, 29, 31, 33, 35, 91, 121, 127, 133, and 135 of the Federal Aviation Regulations are amended as follows, effective February 1, 1977.

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Inflation Impact Statement under Executive Order 11821 and OMB Circular A-107.

Amendment 91-136

Subpart E—Operating Noise Limits [NEW]

Phased Compliance With Part 36 Noise Limits By Certain Turbojets With Maximum Weights Greater Than 75,000 Pounds

Adopted: December 17, 1976 **Effective: January 24, 1977**

(Published in 41 FR 56046, December 23, 1976)

The purpose of this amendment to Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is to achieve further relief and protection to the public from aircraft noise by requiring certain previously excepted airplanes to meet present Federal noise standards in accordance with a phased time schedule ending on January 1, 1985. This amendment implements a decision, approved by the President on October 21, 1976, and announced in a comprehensive Aviation Noise Abatement Policy Statement issued by the Secretary of Transportation and the Federal Aviation Administrator on November 18, 1976. It extends current Federal noise standards to domestic commercial airplanes in not more than eight years from January 1, 1977.

This amendment applies to U.S. registered civil subsonic turbojet airplanes with maximum weights greater than 75,000 pounds. It applies to airplanes with standard airworthiness certificates, if those airplanes are not engaged in foreign air commerce. For airplanes operated under Parts 121 and 135 of the Federal Aviation Regulations, dates for progressive fleet compliance with Part 36 are also prescribed in this amendment, as follows:

1. January 1, 1981, for at least one quarter of the four-engine airplanes with low bypass ratio engines.
2. January 1, 1981, for at least one quarter of the four-engine "pure jets."
3. January 1, 1981, for at least one half of all other airplane types.
4. January 1, 1983, for at least one half of the four-engine airplanes with low bypass ratio engines.
5. January 1, 1983, for at least one half of the four-engine "pure jets."
6. January 1, 1983, for all other airplane types.

This document also contains a notice of FAA's decision not to prescribe operating noise limits for aircraft engaged in foreign air commerce (including operations under Part 129 of the Federal Aviation Regulations), or for airplanes weighing 75,000 pounds or less, at this time. This amendment is issued pursuant to § 611 of the Federal Aviation Act of 1958 (herein called "the Act").

While this amendment is expected to produce significant improvements in the noise environment at major airports, substantial local action will be necessary to complement the noise reduction actions of the Federal Government and air carriers. The only successful attack that can be launched on the overall problem of aircraft noise is one that involves the cooperative participation of all levels of government, as well as airport operators, air carriers, manufacturers, and airport neighbors. The responsibilities of all of these parties are stated in detail in the "Aviation Noise Abatement Policy," (herein called "the Policy Statement") of November 18, 1976. That document is in the public rules docket for this amendment.

In addition to the Policy Statement, the FAA has issued a final environmental impact statement (EIS), dated November 10, 1976, concerning this amendment. This document (herein called "the EIS") has been placed in the public rules docket for this amendment. It contains detailed analyses concerning the need for this amendment and its estimated costs and benefits. The EIS contains a detailed listing of the affected civil turbojet fleet and fleet forecasts developed by the FAA. These data were used in the environmental and inflationary impact analyses supporting this regulatory action.

As stated below, compliance with this amendment can be achieved by the acoustical modification, or "retrofit," of noncomplying airplanes or through their replacement with complying airplanes. While the cost and benefit analysis in the EIS indicates that prolonged retention of certain aircraft would be uneconomical due to increased maintenance and higher fuel cost differentials, the replacement policy of individual operators will depend on their capital investment plans and financial capability.

It should therefore be stressed, at the outset, that the purpose of this amendment is not to force the retrofit of older airplanes, but rather to encourage each operator to adopt whatever means of achieving compliance is best suited to his individual economic situation. This may involve replacement of older airplanes by new technology airplanes, the retrofitting of his current fleet, or a mixture of these options. However, the FAA recognizes the advancements in energy efficiency, safety, noise reduction, and engine emissions that are offered by new technology airplanes. This amendment is intended to encourage the introduction of the newest generation of airplanes into the fleet as soon as practicable. To maximize the incentive to replace rather than retrofit older airplanes, this amendment provides for a carefully controlled and limited extension of the January 1, 1981, and January 1, 1983, compliance dates for operators who elect to replace these older airplanes with new airplanes that comply with Part 36.

At the direction of the President, the Secretary, on December 1, 1976, conducted a public hearing on the need for special financing measures to assure timely compliance with this amendment, with particular emphasis on the replacement of the older, noisier four-engine airplanes. The Secretary will make a recommendation to the President by December 31, 1976.

I. *BACKGROUND: THE NEED FOR THIS AMENDMENT.*

The current U.S. fleet is comprised of some 2,100 large jet aircraft. Of these, 1,600 (about three-fourths) do not currently comply with Part 36 noise standards. It has been estimated that between 1,300 and 1,600 of these noncomplying aircraft would remain in service throughout the 1970s and possibly some 50 percent would be in service by 1990 if there were no Federal action.

In extending the Part 36 noise standards to airplanes currently in operation, the FAA is acting pursuant to § 611 of the Act, which directs the FAA to afford present and future relief and protection to the public health and welfare by the control and abatement of aircraft noise, after considering whether noise abatement regulations are consistent with the highest degree of safety in air commerce and are economically reasonable, technologically practicable, and appropriate for the particular type of aircraft. This amendment to the Federal Aviation Regulations is the result of several years of study of these factors by the FAA and consultation with the Secretary of Transportation and the Environmental Protection Agency (EPA) in order to assure the fullest possible consideration of the public health and welfare, safety, economic reasonableness, and technological practicability.

The FAA and other Federal agencies have been developing a comprehensive program to reduce public exposure to aircraft noise. In addition to FAA-sponsored research in reduction of turbomachinery noise through the use of sound absorbing materials (SAM), NASA has conducted a parallel program which included SAM, but also focuses on reduction of JT8D jet exhaust noise by redesign of the engine itself by increasing the engine bypass ratio through replacement of the two-stage fan with a larger diameter single-stage fan (refan). Complementing these programs in source noise reduction, FAA and NASA have also been examining the use of operational procedures for further reductions in noise. This amendment does not signify an end to this important research, which, with other related research, will continue in its effort to ensure the broadest possible attack on the aircraft noise problem.

As more fully discussed below in relation to public comments, aircraft noise is a significant annoyance for six to seven million persons in the United States. The problem is particularly serious at some of the major airports. It represents, moreover, a significant or potential problem for residents living near many other airports across the nation. Aircraft noise is a problem of national scope because a significant portion of the American people are affected by it at many locations throughout the country. Airplane noise is also a peculiarly local problem, varying substantially among airport communities depending on the air service provided, the type and frequency of operations, the airport design and geographical arrangement, the mix of equipment and route patterns, the numbers of people who live nearby and their reaction to aircraft noise, and the general compatibility of land use in the surrounding areas.

The aircraft noise issue became increasingly important in the early 1960s as airlines introduced jet aircraft to their fleets. The rapidly increasing number of commercial jet operations in the latter part of the decade further increased the importance of this problem. Because of its adverse effect on people, noise was soon recognized as a major constraint on the further development of commercial aviation. The engine manufacturers and the Federal Government both engaged in extensive research into quieting jet engines. In 1968, Congress gave the FAA the responsibility to regulate aircraft design and equipment for noise reduction purposes, and the FAA then embarked upon a long-term program of controlling aircraft noise at its source.

Of the six to seven million persons subject to significant aircraft noise, approximately 600,000 reside in areas that are severely impacted. Severe noise impacts include disturbances of the normal activities of airport neighbors—their conversation, sleep, and relaxation—and degrades the quality of life. Based on an analysis of citizen and Congressional complaints, the imposition of airport use restrictions, litigation, and the number of persons affected, the FAA has identified many airports where noise is an issue. A 1974 Department of Transportation study of 23 major airports identified eight airports that have neighboring populations of over 25,000 residing within noise contours representing serious noise annoyance, and 13 airports with at least 100,000 persons residing within noise contours representing considerable noise annoyance. For the 23 airports surveyed, five million people live within these noise contours (described in the Policy Statement and EIS as noise exposure forecast (NEF) 30 and 40 contours). In addition, the Air Transport Association has identified many airports as "noise sensitive," including several not treated in the 23-Airports Study. The affected airports are identified in the Policy Statement.

As a result of the impact of aircraft noise on airport neighbors, serious pressures have developed that could threaten the continued growth of a healthy air transportation system. These pressures include restrictions on airport usage such as curfews, restrictions on the use of certain aircraft, opposition to airport development, and serious liability exposure for existing airports. For example, over the past five years, airport proprietors have paid out over twenty-five million dollars in legal judgments and settlements in noise related suits and have spent over three million dollars in legal fees and other legal defense costs. This is in addition to the monies being spent by airport proprietors in acquiring land adjacent to their airports and soundproofing affected buildings such as schools, residences, and public buildings.

The health of the air transportation system is inseparable from the health of the national airport system. There are now over 13,000 public airports operating in the United States. These airports vary widely in their size, closeness to populated areas, and aircraft mix. Some of these airports are among the busiest in the world, with 84 airports having more than 200,000 annual operations, 160 airports having more than 150,000 operations each year, and well over 200 airports having more than 100,000 such operations. The busiest airports are generally located in the vicinity of the larger metropolitan areas, where the population is concentrated.

The critical conclusion coming out of the many years of FAA review of this problem is that, both from the standpoint of the quality of life in airport environments and from the standpoint of the preservation of a strong airport/air transportation system, Federal action is required to ensure that commercial aircraft comply with Part 36 noise levels within the next decade. The normal incentives of the private marketplace are not expected to achieve this. Fleet forecasts through the 1990's bear this out, as more fully discussed below. This amendment is essential to provide the catalyst, and the legal framework, for a comprehensive, cooperative effort by Federal, State, and local governments, by air carriers and manufacturers, and by airport neighbors, to achieve meaningful relief from aircraft noise and also preserve the strength of our vital air transportation and airport system.

II. *HISTORY OF THIS AMENDMENT.*

1. Part 36 of the Federal Aviation Regulations "Noise Standards: Aircraft Type Certification" (34 FR 18355; November 18, 1969), which became effective December 1, 1969, originally prescribed noise measurement, noise evaluation, and noise level requirements for the issuance of type certificates, and changes to those certificates, for subsonic transport category airplanes, and for subsonic turbojet engine-powered airplanes, re-

gardless of category. That regulation initiated the noise abatement regulatory program of the FAA under the statutory authority of Pub. L. 90-411 (July 21, 1968) which added § 611 to the Act.

2. On November 4, 1970, the FAA published Notice No. 70-44, an advanced notice of proposed rule making (ANPRM) entitled "Civil Airplane Noise Reduction Retrofit Requirements" (35 FR 16980). That ANPRM proposed the retrofitting of existing subsonic turbojet engine-powered airplanes to achieve compliance with Part 36 noise levels.

3. After considering the comments in response to Notice 70-44, on March 22, 1974, the FAA issued a Notice of Proposed Rule Making (Notice 74-14) entitled "Civil Aircraft Fleet Noise Requirements" (39 FR 11302; March 27, 1974). That Notice proposed that civil subsonic turbojet engine-powered airplanes with maximum weights of 75,000 pounds or more be required to comply with Part 36 noise standards. Notice 74-14 contained proposals applying to civil subsonic turbojet engine-powered airplanes weighing 75,000 pounds or more, and operated under Parts 91, 121, 123, 129, and 135. Comments received in response to that NPRM have been carefully reviewed (together with comments in response to Notice 75-5, which is discussed below) in the issuance of this amendment.

4. On December 13, 1974 (39 FR 43422), the Council on Environmental Quality (CEQ) published in the Federal Register a notice of availability for public review and comment with respect to a draft environmental impact statement prepared by the FAA regarding the rule proposed in Notice 74-14.

5. On January 28, 1975, pursuant to § 611(c)(1) of the Act, as amended by the Noise Control Act of 1972 (Pub. L. 92-574), the EPA submitted to the FAA its recommended regulation to amend Part 91 to require all civil subsonic turbojet engine-powered airplanes, including those weighing less than 75,000 pounds, to comply with the noise standards of Part 36 before June 30, 1978. Accordingly, under § 611(c)(1) of the Act, the FAA published Notice 75-5, "Civil Subsonic Turbojet Engine-Powered Airplanes: Noise Retrofit Requirements" (40 FR 8218; February 26, 1975). On March 18, 1975, pursuant to a notice of public hearing (40 FR 8243; February 26, 1975), the FAA conducted a public hearing in Washington, D.C., to afford interested persons the opportunity to submit written and oral comments and present views, data, or arguments regarding the EPA-recommended regulation.

6. Pursuant to § 611(b)(1) of the Act, the FAA has consulted with the Secretary of Transportation and EPA prior to adoption of this amendment. Also, submission of this amendment to the EPA for review prior to its adoption was accomplished in accordance with § 309 of the Clean Air Act, as amended (42 U.S.C. § 1857 h-7), and the guidelines of CEQ contained in 40 CFR 1500.9(b).

7. As discussed above, a final environmental impact statement, reflecting this amendment and the comments received on the draft EIS was issued on November 10, 1976, in accordance with the National Environmental Policy Act of 1969 and implementing guidelines of the CEQ, the Department of Transportation, and the FAA.

III. *RELATIONSHIP TO PRIOR RULE MAKING.*

This amendment is an important part of the FAA's overall aircraft noise control and abatement program. The adoption of Part 36 in 1969 required new airplane types to be markedly quieter than the generation of turbojets developed in the late 1950's and early 1960's. Since the adoption of Part 36, the FAA has issued a number of notices proposing amendments to its provisions and, subsequent to notice and public procedure, has adopted those amendments which have been found to be consistent with the duties contained in § 611 of the Act. Those amendments have increased the protection of the public health and welfare by providing for the necessary control and abatement of aircraft noise and sonic boom. Further amendments are currently under consideration by the FAA for future issuance.

In issuing amendments under the authority of § 611 of the Act, factors which the FAA must consider include the following:

1. Available data relating to aircraft noise, including the results of research, development, testing, and related evaluation activities.

2. The views and positions of other Federal, State, and interstate agencies.

3. Whether the proposed regulations are consistent with the highest degree of safety in air commerce and air transportation in the public interest.

4. Whether proposed regulations are—

a. Economically reasonable;

b. Technologically practicable; and

c. Appropriate for the particular types of aircraft, aircraft engines, appliance, or certificates to which they would apply.

5. The extent to which the proposed regulations contribute to providing protection to the public health and welfare by carrying out the purpose of § 611 of the Act.

Thus, in furtherance of its aircraft noise policy and its responsibility to issue appropriate rules for the control and abatement of aircraft noise and sonic boom, the FAA has adopted the following amendments to the FARs:

1. Amendment 36-1 (34 FR 18815; November 25, 1969) amended Appendix C of Part 36 regarding noise test procedures and standards, to ensure that the approach noise test is conducted with the aircraft in the configuration that is used for safety purposes during type certification and that the test conditions do not contribute to measured noise levels less than those generated in normal operation of the aircraft.

2. On March 28, 1973, the FAA published in the Federal Register an amendment to Part 91 (Amendment 91-112; 38 FR 8051) to prohibit unauthorized operation of civil aircraft at supersonic speeds over the United States.

3. Under Amendment 36-2 (38 FR 29569; October 26, 1973), the number of aircraft subject to Part 36 requirements was increased significantly. All subsonic turbojet-powered airplanes and transport category airplanes produced after January 1, 1974, including those produced under type designs certificated before the original Part 36 compliance dates, were required to comply with the noise level requirements of Part 36, regardless of the date of the type certificate.

4. In 1974, the FAA issued Amendment 36-3 (39 FR 43830; December 19, 1974) to increase the stringency of the conditions under which applicants for an acoustical change approval must show that issuance of authorization of type design changes of affected turbojet-powered airplanes and transport category airplanes would not result in an increase of takeoff or sideline noise levels of those aircraft.

5. Propeller-driven airplanes with maximum certificated weights less than 12,500 pounds were made subject to Part 36 noise requirements in late 1974, when Amendment 36-4 (40 FR 1029; January 6, 1975) was issued. As amended, Part 36 prescribes noise standards and test procedures and conditions for new type designs of normal, utility, acrobatic, transport, and restricted category propeller-driven small airplanes. It also prescribes noise regulations for issuing standard airworthiness and restricted category airworthiness certificates for newly produced propeller-driven small airplanes and prohibits acoustical changes in type designs of those airplanes that would increase their noise level emissions beyond the prescribed limits.

6. Amendment 36-5 (41 FR 35053; August 19, 1976) amended provisions of Part 36 relating to noise type certification and acoustical change approvals in Subpart A and Appendices A, B, and C. Those amendments involved the technical procedures and standards for measuring and evaluating the noise emissions in the noise tests of civil subsonic turbojet-powered airplanes and transport category large airplanes.

7. Recently, based on its consideration of recommended regulations submitted to it by EPA under § 611(c)(1) of the Act, the FAA adopted certain amendments and issued notices of proposed rule making under § 611(b) of the Act. The FAA issued the following regulatory actions:

a. Amendment 36-6 (issued December 17, 1976) amended the noise test provisions applicable to propeller-driven small airplanes. That amendment involved the noise measurement and evaluation provisions and the noise test engine power setting requirements in Appendix F of Part 36.

b. The EPA-proposed rule contained in Notice 74-39 (40 FR 1061; January 6, 1975) also concerned noise test requirements and operating limitations for those propeller-driven small airplanes designed for agricultural or firefighting operation purposes and which do not comply with Part 36 noise limits. After due consideration of that proposal, the FAA concluded that an appropriate regulatory constraint on the operation of those airplanes was beyond the scope of Notice 74–39. Accordingly, the FAA has recently issued an NPRM which proposes to prohibit operation of those airplanes that do not comply with Part 36, except to the extent necessary to (1) accomplish the work activity directly associated with the special purpose for which the airplane is designed and (2) conduct certain other limited operations related to that purpose.

c. Amendment 91–134 (41 FR 52388; November 29, 1976) amended Part 91 for noise abatement purposes to require that a pilot in command of a civil turbojet-powered airplane use the lowest authorized flap setting consistent with safety.

d. After review of the EPA proposed rule contained in Notice 75–35 (40 FR 44256; September 25, 1975) regarding the use of reduced flap settings for noise abatement purposes, the FAA concluded that a regulatory action in addition to the amendment adopted in Amendment 91–134 should be considered for adoption. Accordingly, the FAA issued Notice 76–26 (41 FR 52396; November 29, 1976) proposing an amendment to Part 91 to require that the landing flap setting for turbojet-powered airplanes be delayed until at or below 1,000 feet above the airport elevation, unless a landing flap setting at a higher altitude is necessary in the interest of safety.

IV. *COMMENTS ON NOTICE NO. 74–14 AND NOTICE NO. 75–5*

Interested persons have been afforded the opportunity to participate in this rule making by submitting comments to the regulatory docket for each notice and by participating in a public hearing on the matters contained in Notice 75–5. The written comments to the dockets and the written and oral presentations made at the public hearing, which were made a part of the docket for Notice 75–5, have been reviewed and all matters contained in those dockets have been considered in the issuance of this amendment.

While there are some significant differences between the proposals in Notice 74–14 and Notice 75–5, the major issues concerning the need for the further reduction of aircraft noise at the source and the means by which that noise reduction should be achieved, including the questions of when it should be accomplished, were raised in response to both notices. Over 800 comments were submitted to the two regulatory dockets. The two notices of proposed rule making attracted comments from a wide range of interests, including individual private citizens; citizen groups; airport operators and operating authorities; environmental interest groups; Federal, State, and local governmental bodies; foreign governments and entities; aviation trade/industry associations; domestic and foreign aircraft and aircraft engine manufacturers; and domestic and foreign aircraft owners and operators.

The comments focused on the following issues: the options or alternatives to the proposed rule making that might be available; the effects of aircraft noise on the public health and welfare, costs versus benefits, economic reasonableness, technological practicability, compliance dates, the need for tradeoffs, appropriateness to particular aircraft types; safety; impacts of the proposed rule on energy consumption and aircraft emissions; and miscellaneous issues. These comments are discussed below.

A. *Alternatives to the Proposed Regulation.*

Virtually every commenter expressed support for the goal of aircraft noise reduction or, more particularly, the need for appropriate action to abate the impact of noise annoyance in the airport environment. In responding to the issues involved in the proposals contained in the notices, many commenters recognized the broader issues of aircraft noise control going beyond source noise reduction. Some discussed the various methods which may be used to achieve noise relief and reduce noise impact on the community. Thus, the docket contains suggestions of noise control actions that were alternative or supplemental to those proposed in the notices. Many of these suggestions were beyond the scope of the notices, such as suggestions for specific flight procedures. Other alternatives that were suggested included matters beyond direct FAA control, such as land-use controls.

The FAA agrees with those commenters who recognize that this rule-making action will not eliminate the aircraft noise problem. However, the FAA also agrees with many commenters that this amendment is a necessary step towards achieving appropriate reductions at the noise source and will contribute to making aircraft and airports more compatible with the communities they affect. As many commenters noted, a comprehensive program involving many levels of government and combining numerous noise control and abatement techniques is needed to achieve the necessary protection to the public health and welfare. A discussion of these other noise reduction techniques is contained in the EIS and Policy Statement.

The FAA does not agree with those commenters who believe that the use of specific noise abatement operating/flight procedures, or combination of procedures, would provide the necessary noise control and abatement. Further, some commenters mistakenly believed that using an operational procedure during the flight of a noncomplying aircraft can serve as a substitute for compliance with Part 36. While some procedures help to minimize the generation or the propagation of noise from the aircraft in flight, their benefits to the public health and welfare are most significant when combined with other effective techniques, such as the source noise control that results from compliance with Part 36. Operational procedures are not a substitute for, but complement, limitations on source noise generation.

Some commenters, particularly some aircraft owners and operators, suggested that the FAA should permit the use of noise abatement operating procedures as an alternative to compliance with source noise limits. The FAA notes that it has consistently supported the use of those procedures that are in conformity with the safe and efficient use of the navigable airspace and do not otherwise adversely affect safety. The significance of terminal area procedures and other airport noise abatement techniques is discussed in the Policy Statement. Several commenters recognized that, unless future reductions in aircraft noise emissions at the source completely satisfy the need for protection of the public health and welfare, supplemental action by aircraft and airport operators and state and local governmental entities will continue to be needed. The FAA agrees. However, the FAA believes that the fact that non-Federal action is necessary is not a justification for delaying strong Federal action to bring about that part of the overall solution that is within Federal control. Some commenters opposing adoption of the proposed rules pointed to local airport measures as alternative means of achieving noise control. Since many of these matters are within the authority and control of the local community, the FAA cannot ensure that they will be acted upon. The FAA agrees with those commenters who stress the important role of aggressive local action, including planned airport development, zoning and related land-use controls, and the use of sound suppression materials in certain buildings in achieving the desired reduction of aircraft noise impact on local communities. However, the FAA does not agree with the suggestion by some commenters that the noise impacted communities should bear the full burden of reducing aircraft noise around airports. As previously stated, the cumulative effect of the various components of a comprehensive noise program is, and is expected to continue to be, necessary to achieve the required protection to the public health and welfare. This amendment is a significant Federal contribution to that comprehensive program.

B. *Impact on the Public.*

The disruptive effect of aircraft noise on the quality of life, and on the air transportation system, has been outlined above and is discussed in detail in the Policy Statement and EIS. Public comments fully support FAA's conclusions concerning the impact of aircraft noise on the public.

As previously stated, virtually every commenter to the two dockets and each participant at the public hearing expressed support for the goal of aircraft noise control and abatement. Private citizens; citizens groups; Federal, State, and local authorities; and in particular, airport operators and proprietors stressed the need for present, as well as future, aircraft noise reduction requirements. The noise of air carrier aircraft, that is, the heavier turbojet-powered airplanes, was cited as a principal target for such reductions by many commenters. The FAA agrees that available technology must be applied in the further reduction of noise of those aircraft. This amendment accomplishes that result consistent with the considerations listed in § 611(d) of the Act.

More than 500 comments cited the need for significant and immediate relief from aircraft noise. Many commenters furnished graphic descriptions of the annoyance and disruption of their lives caused by unacceptably high levels of aircraft noise. Most of these commenters urged, and many demanded, that the FAA immediately adopt the proposed rules but with compliance sooner than that proposed. Educators, students, nurses, doctors, and others involved in noise-sensitive activities that are routinely affected by the sound of aircraft expressed their personal concern with the disturbance of noisy aircraft. The FAA agrees that the proposed operating noise limits are needed and must be issued at this time. Further, the compliance dates for accomplishing those reductions should be set at the earliest date consistent with the statutory duty to consider economic reasonableness, technologically practicability, and flight safety. This amendment achieves that result.

The FAA agrees that since economically reasonable technology is currently available for, and is employed on, new production aircraft of the same basic type designs as certain older aircraft in the existing fleet, there remains no justification for not requiring the use of that noise reduction technology on older models of similar aircraft types if the operators of these older airplanes elect not to replace them with new technology airplanes. However, this has not been shown to be the case for the smaller turbojet types, as discussed below with respect to airplanes weighing 75,000 pounds or less.

The public comments regarding the perceived impacts of aircraft noise have been reviewed and were found to be useful and informative. Those comments have assisted the FAA in determining, after due consideration of all comments, that the economic impacts imposed by this amendment are reasonable and appropriate in relation to the benefits to be achieved. These costs and benefits are discussed below.

C. *Impact on the Fleet: Costs and Benefits.*

Many comments were received concerning the economic impacts of the proposed rules on aircraft operators and whether or not these impacts would be justified in terms of the noise reduction benefits to be obtained.

The comments addressing economic impact concentrated on the following issues: costs of retrofit, re-engining or replacement, technological practicability, refan availability, tradeoffs, appropriateness to particular airplane types, and compliance dates.

With respect to cost impacts, comments indicated that "hush kits" have substantial cost elements since (1) they are expensive to manufacture and install, (2) they cause weight and performance penalties leading to increased fuel usage and operating costs, and (3) they deflect expenditure from new, quieter airplanes, which retards the ultimate introduction of appreciably quieter new airplane types. The FAA has fully reviewed these factors and believes that the regulation, as issued herein, adequately accounts for these cost elements. Economically reasonable retrofit hardware is available for many airplane types. While there will necessarily be costs associated with the manufacturing and installation of retrofit hardware, these costs, as discussed more fully below and in the EIS, are considered by the FAA to be reasonable, particularly when considered in relation to the resulting noise reduction benefit which improves the quality of life and provides relief and protection to the public health and welfare from aircraft noise. The compliance dates and replacement plan provisions of this amendment permit adequate fleet planning to prevent premature investment in marginally effective retrofit technology and allow the phasing in of the most advanced new airplane types to replace airplanes that are becoming economically obsolete.

One comment highlighted the vulnerability of airplane operators to supply problems involving manufacturers. For example, it was stated that a prime supplier of quiet nacelle kits has ceased all kit production because of poor market conditions and that the production rate will only be known when the size and timing of the market is known. Problems associated with the production of critical forgings and other tooling equipment were also stressed. This planning problem was stated to be further confused by such unknowns as customer order size, time of production, and the inflation rate. The FAA believes that the planning time furnished in this amendment, and the flexibility that it allows, coupled with the certainty of the requirement for Part 36 compliance, will provide a firm planning basis for defining the retrofit market, establishing production schedules, and developing the best compliance options for each operator who elects not to replace older airplanes.

Several comments were received indicating that certain airplane types, such as the older four-engine axial flow turbojets, could not economically be brought into compliance. The issue raised by this objection is whether or not replacement of a noncomplying airplane type by a complying airplane type should be required where the cost of aircraft modification may be great in relation to the value of the airplane being modified. The FAA believes that, since unrestricted use of noncomplying airplanes lessens the public benefit resulting from compliance by other portions of the total fleet, replacement or retirement of these airplanes should be required, within reasonable time limits. Much attention has been given to such factors as airplane useful life, amortization, depreciation, and ultimate replacement. Because of the ample lead times in this amendment, including the replacement plan provisions, economically reasonable options are afforded by this amendment.

A somewhat contradictory pattern of comments emerged. Certain comments argued that no firm dates could be set because of the many variables involving retrofit kit production, and stated that no time limit could be established until the FAA obtains "guaranteed" dates from the manufacturers. Another line of comments stated that, while the dates proposed were too restrictive, the establishment of firm dates is essential to begin the procurement, production, and distribution processes necessary for effective fleet noise reduction. Both of these arguments appear to have merit. This amendment therefore accommodates both the need for maximum industry initiative and the need for a firm compliance schedule. This is done by permitting operators to obtain approval of replacement plans.

This is consistent with the primary goal of this amendment which is to extend the noise standards of Part 36 to the currently operating fleet of heavy turbojet airplanes while at the same time allowing the flexibility necessary to permit operators to purchase new technology airplanes where that option is superior to the modification of older airplanes. A recent NASA study has shown that substantial long-term (through the year 2000) reductions in noise, fuel consumption, and air polluting emissions are achievable through the development and introduction of more advanced technology than that currently available. The FAA believes that the greatest benefit to the public that could flow from this amendment would be the encouragement of aircraft operators and manufacturers, working together, to accelerate the growth and application of this new technology.

Many comments to Notice 75-5 stated that the dates proposed in the notice could not be met and must be relaxed. These comments furnished detailed information on the fleet-by-fleet timing problems involved in retrofit. This information indicated that it was not feasible to comply with the proposed rule by June 30, 1978, even if all retrofit type design changes had already been certificated. It was estimated that up to 30 months would be needed for availability of the first kit after receipt of the purchase order. Two to three months more time was urged as being essential to permit responsible decisions concerning the placing of purchase orders with manufacturers. For aircraft for which retrofit type design certification, production engineering, and tooling have not been accomplished, time frames in the order of three years were estimated before significant kit production rates could be achieved, with more time being estimated for total fleet compliance for these airplane types. Similar timing problems were stressed with respect to the replacement of older airplanes with newer airplane types.

Comments were received concerning the impact of the proposed compliance dates on foreign operators. For reasons discussed in Section IV below, the FAA has determined that a regulation should not be prescribed for foreign operators at this time.

One comment pointed out that the only retrofit kits that might be developed within shortened production schedules would have unacceptable losses in thrust and increases in fuel consumption. The FAA is particularly conscious of the secondary impacts that noise abatement type design decisions may have on safety, performance, and fuel consumption throughout the remaining useful life of an airplane. The dates prescribed in this amendment are selected to permit the development, marketing, and incorporation of hardware that is optimal in all of these respects for operators electing not to replace their older airplanes.

Strong public comment was received urging that there be no slippage in the proposed dates. Concern was expressed that the arguments in favor of further delay had run their course, were no longer valid, and should no longer be controlling. It was stated that the public interest requires that the proposed dates be met regardless of cost to the airlines. Other comments recognized the need to consider economic and technological factors in arriving at these compliance dates, but argued that the proposed dates adequately accounted for those factors and should be preserved.

The great volume of written and oral comment received in the docket and at the hearing has provided a clear perspective on the magnitude of the problems involved in overall fleet compliance with Part 36. The cumulative impacts of the proposed compliance dates on prototype testing and construction, certification testing, production engineering, materials availability, procurement by operators, delivery, and aircraft modification and downtime scheduling have been reviewed. In the preproduction phase, for example, an engine manufacturer indicated that a critical timing constraint on the production of retrofit kits is the extremely limited forging press capacity of his supplier, and the time (estimated as four years) required for this supplier of aluminum forgings to increase his production capacity. In summary, the information received in response to the notice clearly showed the extent to which the aircraft operator, who is the regulated person, is at the end of a long and complex chain of production stages over which he has no direct control and involving suppliers whose schedules and marketing patterns are beyond FAA regulatory control. The compliance dates in this amendment reflect this.

Each potentially viable option for accelerating total fleet compliance with Part 36 has been considered in its relation to the factors discussed above. Where possible, separate compliance schedules have been established in this amendment to accelerate compliance by different segments of the fleet. However, consistent with the duty specified in § 611(d) of the Act, the FAA does not believe that the total elimination of noncomplying airplanes, by retrofit, replacement, or retirement, can reasonably be mandated in less than the time permitted under this amendment.

Several comments stressed the development of refan technology as a superior alternative to retrofitting with quiet nacelle treatment. These comments urge that the FAA not force the premature incorporation of quiet nacelle treatment and then require a later retrofit to incorporate refan technology. These comments pointed out the wasted resources that would result from such a double retrofit. The FAA agrees in part with these comments. The lead times in this amendment, and its provision for approval of alternate compliance plans, are intended to encourage and facilitate the most flexible compliance programs consistent with the clear public need for a firm schedule of compliance. However, it should be pointed out that the noise limits in this amendment will be continuously reviewed, and noise reduction technology assessed, to determine whether lower noise limits should be prescribed in the future. Therefore, compliance with this amendment should not be regarded as assuring that no further retrofit or airplane replacement will be required in the future.

Many comments were received concerning the proposal to require all operators to comply with Part 36 without "tradeoffs." (Under the "tradeoff" provisions of Appendix C of Part 36, the applicable noise limit may be exceeded at one or more measuring points (e.g., takeoff or approach) if that exceedence is offset by a noise level at another measuring point, such as sideline, that is sufficiently below the applicable limit.) These comments pointed out that current regulations permit the issuance of standard airworthiness certificates to newly produced airplanes of older type designs that use the tradeoff provisions of Part 36 to show compliance with that part. It was stated that an anomolous situation would be created if an airplane certificated using tradeoffs were not permitted to operate unless recertificated without tradeoffs. This same argument was raised concerning airplanes voluntarily brought into compliance with Part 36 prior to the issuance of operating noise limits. The FAA agrees with these comments. For airplanes that were in compliance with Part 36 prior to January 1, 1977, this amendment does not require recertification to Part 36 requirements without tradeoffs. This is also the case for airplanes that are shown (before or after January 1, 1977) to comply with Part 36 for the original issuance of a standard airworthiness certificate. For both classes of airplanes, the FAA believes that the increment of further noise reduction to be achieved by recertification does not justify the imposition of recertification costs.

Other comments argued that the older class of turbojets that have never been in compliance with Part 36 (i.e., those that were not designed or produced under Part 36 requirements or voluntarily brought into compliance with that part) should not be required to comply with Part 36 without tradeoffs when the newer technology airplanes may use tradeoffs. The FAA disagrees. Unlike the two cases discussed above, which involve airplanes for which a no-tradeoff requirement would involve recertification, it has been determined to be cost effective, for certain airplane types, to apply full acoustical treatment to reduce the high noise levels of previously noncomplying airplanes all the way down to compliance with Part 36 without tradeoffs. In many cases, the technology is already available. In other cases, it is expected to be available in sufficient time to permit compliance within the dates prescribed in this amendment. The degree of noise reduction this technology offers to noncomplying airplanes warrants the cost of a single retrofit requirement that does not permit tradeoffs to be used. The FAA recognizes, however, that certain of these older noncomplying airplanes either cannot comply with Part 36 without tradeoffs under any circumstances, or cannot comply at certain high weights. For those airplanes, this amendment permits the approval of the use of tradeoffs if the operator shows that, after full application of existing retrofit technology, the use of tradeoffs is required for compliance with Part 36.

In addition to the numerous comments addressing the costs that would result from the proposed regulation, many comments concerned the benefits to be expected from the rule. Several comments pointed out that complete resolution of the airport noise problem requires that state and local governments take aggressive action to achieve land-use compatibility around airports. The FAA agrees. The noise limits specified in Part 36 are the lowest noise levels that can be achieved, at the source, through reasonable application of available noise reduction technology. As stated above, the noise levels specified in Part 36 represent a significant improvement in source noise reduction, but complementary action by state and local governments, including airport proprietors, is a vital part of the overall solution to the airport noise problem.

In addition to comments relating the effectiveness of source noise reduction to the effectiveness of land-use controls, several comments addressed the direct benefits of the source noise limits as proposed. One comment stated that, if quiet nacelle treatment were required too early, this would so damage the economic condition of one carrier that it would be forced to leave older, noisier, less efficient airplanes in service and delay the return to service of wide-bodied airplanes that were removed from service because of poor market conditions. The FAA has made every effort to ensure that this amendment will not have the counterproductive effect of extending the life of older airplanes and retarding the entry of new technology airplanes into service. As stated above, the lead times and replacement plan approval provisions in this amendment are intended to permit phased replacement of airplanes and not force the retrofitting of older airplanes to the exclusion of more effective options.

Several commentators stated that the actual perceived noise reduction from quiet nacelle retrofit is minimal and should not be required. The FAA disagrees. In terms of total fleet noise reduction, the FAA believes the requirement to achieve compliance with Part 36 will result in significant source noise reduction, and that the retrofit technology that is available for certain older airplanes will provide an important part of that overall fleet noise reduction. The FAA has given particular attention to detailed comments stating that there is no solid evidence that quiet nacelle retrofitting provides economically justifiable public health and welfare benefits. One of these comments concluded that it would be a misappropriation of financial resources to impose the burden of retrofit for so little benefit. Three conclusions are reached by the FAA in response to this comment. The first is that compliance with Part 36 through retrofit will result in significant noise benefits. Second, a firm noise ceiling, applicable to all heavy turbojets, will greatly assist state and local governments in adapting local land use to firm source noise levels. The third conclusion is that, because it encompasses both replacement and retrofit, this amendment permits the option selected by an operator to be the most cost effective means for bringing his fleet into compliance.

As a result of combined government and industry research, a safe and practicable application of acoustic technology has been developed and tested that will allow turbojet airplanes certificated prior to the adoption of Part 36 to be modified to comply with that part while maintaining full compliance with applicable airworthiness standards. The FAA, through cost-sharing contracts with industry, sponsored development of technology for acoustic treatment of engine nacelles and fan ducts of JT3D engines with sound absorbing materials (SAM), and demonstrated that it is technically feasible to modify engine/nacelle components to comply with Part 36 with airplane configurations that could be approved for air carrier operation. Under one contract, flight testing of a JT3D powered B-707 with quiet nacelles has shown the applicability of this treatment to the JT3D in a manner achieving compliance with Part 36 for these aircraft. Studies comparing the DC-8 with the B-707 indicate the general manner in which the DC-8 could also be modified to comply with Part 36 consistent with the highest degree of safety.

With regard to other aircraft types affected by the regulation, a modification to enable early production B-747's to comply with Part 36 has been approved and is available. Similarly, JT8D powered B-727, B-737, and DC-9 airplanes are being produced in configurations that comply with Part 36. This technology is appropriate for modification of previously manufactured airplanes of these types.

Appendix D of the EIS contains a detailed study of the noise reduction benefits of aircraft modifications under this amendment. It indicates that reductions at the Part 36 measuring points ranging up to 14 EPNdB will be achieved for a number of air carrier airplane types. The technological alternative of airplane modification has been thoroughly examined. The FAA has determined that SAM nacelle treatment will result in a degree of reduction of airplane noise levels that can significantly reduce annoyance. The absolute magnitude of the reduction in effective perceived noise decibels (EPNdB) for the various affected aircraft is shown in Table II-1 of the EIS. Appendix F of the EIS discusses the subjective effects of such noise reductions. In a letter to the FAA, referring to the above noise reductions for JT8D powered airplanes, members of The Committe on Hearing and Bioacoustics of The National Research Council of The National Academy of Sciences and The National Academy of Engineering stated:

> "We believe that [these] noise reductions in aircraft noise level represent significant and beneficial improvements, which will provide meaningful and perceivable relief to airport neighbors. Recent research has indicated clearly that aircraft noise reductions on the order of 6 EPNdB are quite apparent to residents near airports and result in substantially less annoyance to those residents."

So far as cumulative noise exposure reductions are concerned, the data from the 23-Airport Study have been used by the FAA to model the effect of compliance with this amendment on a national basis. As described above, it is estimated that there are 6 million persons residing on 1,500 square miles exposed to cumulative noise levels of NEF 30 or higher and one-half million persons residing on 150 square miles exposed to NEF 40 or higher. These noise exposure levels range from substantial to very serious in terms of their adverse effect. The FAA estimates that compliance with this amendment will, by 1985, shrink the NEF 30 contours away from approximately 2.5 million persons, and the NEF 40 contours away from approximately 130,000 persons, if replacement of JT3D powered airplanes (i.e., the B-707 and DC-8) is extensive.

Under the regulatory reform policies of the Secretary and the Administrator, a comprehensive analysis of the costs and benefits of this amendment has been completed. The details of this study are shown in the Policy Statement and the appendices of the EIS, particularly Appendix D. Viable combinations of retrofit and replacement are analyzed. This study considered not only the above discussed noise benefits, but also the achievement of other important national objectives. These included the energy conservation benefits of improved fuel efficiency, the increasing importance of aeronautical exports to the national economy, the declining role of aerospace research and development as a percentage of national defense and NASA outlays, the stimulation of employment in the aerospace and related industries, and the advantages to the consumer of more advanced aircraft design and lower operating costs. Based on forecasts of aviation growth, the airport noise problem is expected to increase in the future despite the voluntary introduction of quieter aircraft. Between 1975 and 1990, annual air carrier operations are expected to increase to a degree that would create additional noise exposure which, without Federal action such as this amendment, could more than offset the reduction of noise resulting from the voluntary introduction of quieter airplanes.

The FAA has determined that this amendment is economically reasonable in its impacts. Modification of all affected aircraft would result in an investment cost over the eight-year period of some $700 million and an additional $250 million in operating costs. (This is equivalent to the information in the EIS, in connection with the cost/benefit analysis, which is expressed in terms of discounted values.) On a comparative basis, the increased outlays associated with these capital and operating costs represent less than 2% of estimated passenger and cargo revenues over the same timeframe. This is not more than $1.20 on the average 1975 domestic trunk airfare (which was approximately $60.00). Appendix D of the EIS describes the potential costs of this amendment more fully. In addition to the conclusion that the costs of this amendment are not excessive, the FAA also concludes, on the basis of its analysis of costs and benefits, that these costs are amply justified in terms of the significant noise reduction benefits of this amendment as also discussed in Appendix D of the EIS.

An important adjunct of the overall cost/benefit study was the possible impact of this amendment on inflationary forces in the national economy. Appendix C of the EIS contains this study, including unit cost estimates, effects on supplying industries, the economics of aircraft manufacturing, and employment impacts. The conclusion of this study is that, for all viable compliance options, the total cost of compliance will create additional direct and indirect demands on the supplying industries of 1.5 percent or less of projected output in any year, and that the modification and replacement programs will, at most, raise industry output to its peak 1968 levels. It was also concluded that there should not be any pressure on wages in particular professional or labor occupation groups. It is concluded that no identifiable inflationary pressures on wages or prices are expected through the issuance of this amendment.

In summary, after consideration of all of the issues discussed herein and in the Policy Statement and the EIS, the FAA has determined that this amendment is economically reasonable, technologically practicable, and appropriate to the particular airplane types to which it applies.

D. *Safety.*

Responding to the EPA proposal, one commenter stated that sufficient research has not been conducted to determine the effects that retrofitting with currently available technology may have on the safety of flight of small business jets. That commenter opposed a requirement to retrofit those airplanes on grounds that adequate research has not been conducted.

Other commenters stated that adequate deicing systems for SAM treated engine nacelles are not available and that retrofit may require a change in fire detection and fire extinguishing procedures.

The FAA agrees that the noise levels in Part 36 should not be made applicable to civil subsonic turbojet engine-powered airplanes with maximum weights of less than 75,000 pounds at this time. Evaluations indicate that technology is not currently available to justify applying such a requirement across the board to all aircraft in this class. However, the FAA will continue to evaluate this matter and may propose, at a later date, that Part 36 noise requirements be made applicable to those airplanes, if appropriate technology becomes available and is shown to be economically reasonable and acoustically effective. This is more fully discussed below.

With regard to the comments concerning deicing systems and fire detecting and extinguishing systems, it should be noted that these matters will be given full consideration during certification tests and that safety will not be compromised.

A question was raised concerning the safety of an inlet ring in some of the SAM designs. The use of inlet rings on the affected aircraft configurations has been investigated from the standpoint of safety, and it has been determined that designs can be developed that will meet applicable airworthiness requirements.

In conclusion, the FAA emphasis that, for the aircraft covered by this amendment, compliance with the requirements set forth in this amendment can be achieved in a manner consistent with the highest degree of safety.

E. *Energy and Air Quality.*

Although there are several ways to achieve compliance with this amendment, most commenters critical of the proposals discussed problems associated with retrofit. In this connection, nearly all of those commenters asserted that retrofit would result in a substantial increase in fuel consumption. One commenter asserted that retrofit would derogate efforts currently being made to reduce petroleum consumption. Others estimated that the increase in fuel consumption would result in substantially higher operating costs.

The FAA disagrees with these comments. Extensive engine performance tests have been conducted to evaluate the effects of retrofit. These tests indicate that retrofitting the affected airplanes would result in a maximum of one percent increase in fuel consumption for most airplanes. This increase would constitute an 0.67 percent increase in air carrier fuel use, or an overall 0.43 percent increase in use of aviation fuel if the annual fuel consumption of all aircraft is considered. Moreover, aviation fuel consumption amounts to only 13 percent of the total consumption of fuel in the United States for transportation purposes. Energy expended on transportation constitutes approximately 24 percent of the total consumption of energy in the United States each year. Based on these statistics, retrofit would increase total energy consumpion in the United States by no more than 0.013 percent annually. Accordingly, the FAA concludes that only minimal fuel consumption increases will result from retrofit modifications.

In addition, based on evaluations conducted, the FAA concludes that emissions from retrofitted airplanes will have a negligible effect on air quality and will comply with emission standards established by the EPA. Since the modifications involved in retrofit would not involve changes to the combustion chambers, no fundamental change in the emission generation process is expected. No changes in thrust are expected during idle and taxi. Therefore, emissions associated with ground operations, which are the most critical with respect to the airport impact on air quality, are not expected to be changed.

By the compliance dates specified, it is reasonable to expect that some attrition will reduce the number of aircraft that might have had to be retrofitted if compliance with Part 36 were required at the present time. Based on such considerations, operators may elect to retire, rather than retrofit, some of those airplanes before the compliance dates, or may choose to replace others with new technology aircraft before that date. One result of such decisions would be smaller energy consumption increases attributable to retrofit.

Therefore, the FAA concludes that requiring the airplanes specified in this amendment to comply with Part 36 noise requirements by the dates prescribed, in addition to being necessary to protect the public from aircraft noise, will have a negligible effect on energy consumption and air quality.

F. *Miscellaneous.*

A number of comments contained observations regarding certain legal aspects of the proposals. In this connection, one commenter stated that the FAA should be concerned with the noise reduction of military aircraft.

Section 611, which sets forth the noise abatement duties of the FAA, is in Title VI of the Act, which title authorizes the regulation of civil rather than public (including military) aircraft. Under that title, the FAA is not authorized to prescribe noise regulations controlling the design of military or other public aircraft.

Another comment stated that it would be arbitrary and discriminatory to apply the requirements of Part 36 only to airplanes with maximum weights greater than 75,000 pounds. This comment stated that such a weight distinction would unfairly burden the operators of the heavier aircraft as compared with the operators of lighter aircraft that are in direct competition with them. This weight distinction has been utilized in this amendment to identify those aircraft for which replacement or modification has been determined to meet the economic and technological considerations specified in § 611(d). For smaller airplane types, an across-the-board noise limit has not been shown to be economically reasonable, or technologically practicable at this time.

Finally, one commenter expressed concern that inspection and routine maintenance may become more difficult if retrofit is used to meet Part 36 requirements. That commenter cited as a particular problem the need for a hoist to remove the heavy nacelle lining of one type of airplane. The FAA notes that the SAM retrofit kit was designed to minimize the difficulties associated with the normal maintenance of aircraft engines. Moreover, it should be further noted that a hoist already is employed for routine engine removal and replacement.

VI. *NOTICE OF DECISION NOT TO PRESCRIBE CERTAIN AMENDMENTS.*

Under § 611(c)(1)(B) of the Act, if the FAA elects not to prescribe an amendment in response to an EPA proposed regulation, the FAA must publish in the Federal Register a notice that it is not prescribing a regulation based on that proposal. In two respects, the FAA has elected, after comprehensive review, not to prescribe part of the regulation as proposed by EPA at this time. These involve the applicability of operating noise limits to airplanes engaged in foreign air commerce and to turbojets with maximum weights of 75,000 pounds or less.

A. *Airplanes in Foreign Air Commerce.*

Under proposed § 91.301(b) in Notice 75-6, the noise requirements of Part 36 would be applicable to a civil subsonic turbojet engine-powered airplanes having a foreign registration certificate.

Notice 74-14 contained an extensive discussion of the factors that must be considered in determining whether Part 36 noise requirements should be made applicable to foreign registered aircraft. In this connection, the FAA stated that "it is preferable that environmental problems affecting international civil aviation, like other aviation problems affecting more than one nation, be resolved by the International Civil Aviation Organization" (ICAO). On the other hand, the FAA observed that "equal and nondiscriminatory application of economically reasonable noise standards, to all operators, is an appropriate noise regulatory policy." While the notice proposed that Part 36 requirements be made applicable to foreign registered aircraft, the FAA stated that it would carefully review comments received from foreign and U.S. operators before taking any action on that proposal.

Several commenters expressed support for a proposed rule that would make Part 36 requirements applicable to those airplanes. However, comments received from nearly all foreign operators and governments and international airline groups expressed opposition to that proposal.

Most commenters opposing the proposal criticized the taking of unilateral action by the United States. In this connection, many of these commenters expressed their belief that noise standards affecting foreign operators should be developed in the ICAO forum. One commenter stated that the Council of ICAO has emphasized the need for all member states to refrain from unilateral action. The same commenter also observed that the ICAO Committee on Aircraft Noise has recorded the view that states should not apply national regulations to aircraft of other states without a prior bilateral or multilateral agreement. Others recommended negotiations to arrive at such agreements, stating that unilateral action is not in accordance with accepted international practice and not in the best interest of aviation. Noting that technical capabilities and environmental needs vary among nations, another commenter argued that a lack of formal international policy consistent with these considerations will lead to the enactment of conflicting unilateral requirements and perhaps to unmanageable international problems.

Comments cited Annex 16 to the Chicago Convention as the basis for their opposition to unilateral action. One commenter stated that tradeoffs should be allowed for retrofitted aircraft in accordance with Annex 16. That commenter contended that it would be extraordinary and unsatisfactory if an aircraft were not allowed to operate into and out of the United States, even though fully complying with that Annex and allowed to operate into and out of other ICAO member states. While observing that the standards of Part 36 are more severe than those of Annex 16, another commenter objected to the international application of Part 36 stating that the United States was a party to the introduction of Annex 16.

Other commenters based their objections on considerations of basic fairness. Several observed that foreign operators would be compelled to convert their entire fleets to comply with Part 36 requirements even though the modified airplanes would only infrequently serve U.S. airports. One commenter asserted, in essence, that operations into and out of the United States by foreign registered aircraft are minimal when compared to total U.S. operations, and that if foreign aircraft were subjected to Part 36 requirements, the benefit to the U.S. public would be insignificant.

Some commenters addressed the economic and technological considerations that would be involved if foreign registered aircraft were required to comply with Part 36. In this regard, one such commenter stated that certain aircraft operated into the United

States can, after being retrofitted, meet current Part 36 requirements if tradeoffs are allowed. However, it was stated that other aircraft could meet ICAO Annex 16 noise levels but could not meet Part 36 noise levels even if Part 36 tradeoffs are permitted. Another contended that "hush kits" do not currently exist for some of its aircraft and that it cannot foresee their availability. That commenter further contended that retrofit for those aircraft could probably never be accomplished economically and that expensive re-engining is not a feasible alternative.

Finally, one commenter asserted that foreign registered aircraft should not be affected by the proposal until basic environmental data is presented to show the need for such action.

The FAA believes that these issues are best resolved, in the first instance, at the international level. The importance of international negotiation is stressed in the "International Air Transportation Policy of the United States," issued by the President on September 8, 1976. As stated in that document (and in the November 18, 1976, Policy Statement), the United States encourages agreement on international environmental issues through the ICAO forum where consistent with domestic legal requirements. This policy is intended to promote equal treatment for foreign and domestic carriers through international regulations and preclude any unwarranted economic advantages or disadvantages for competing carriers which would be created in a world air transportation environment characterized by diverse national noise requirements.

Under this policy, every effort will be made to obtain ICAO agreement on application of noise standards for existing aircraft in international operations. If it proves impossible to obtain international agreement on adequate aircraft operational noise standards, the United States, as discussed below, will develop U.S. national standards, applicable to airplanes engaged in foreign air commerce, in order to protect public health and welfare.

ICAO currently is studying noise reduction modifications with the aim of achieving an international agreement on that subject. In light of this and the potentially disruptive effect that action by the United States at this time could have on the orderly development of international noise abatement standards, which could benefit many nations, the FAA believes that it would be inappropriate at this time to make Part 36 requirements applicable to foreign registered aircraft. However, as stated in the Policy Statement, the United States will seek early agreement through ICAO on operational noise standards and an international schedule for compliance with Annex 16 or Part 36. If such agreement is not reached by January 1, 1980, the FAA will take regulatory action to require all airplanes engaged in foreign air commerce to comply with Part 36 or Annex 16, during the period ending on January 1, 1985, at a phased rate of compliance similar to that established for domestic operations. The requirements ultimately applied to U.S. international flag carriers will not be more stringent than those applied to foreign air carriers, since this would place these U.S. air carriers at an economic disadvantage if they had to comply with noise standards more restrictive than those that apply to similar airplanes operated by foreign operators. Where U.S. air carriers serve both domestic and foreign routes, the requirements that are adopted for foreign registered airplanes will also be applied to the portion of the U.S. fleet engaged in foreign air commerce.

In summary, pending the development of international or U.S. operating noise limits for aircraft in foreign air commerce, this amendment does not apply to operators of foreign registered airplanes. In addition, to prevent unjust discrimination against the operators of U.S. registered airplanes that operate over the same routes as foreign registered airplanes, this amendment does not apply to the portion of the fleets of U.S. registered airplanes that are engaged in foreign air commerce. For this purpose, this amendment provides for approval of methods of determining the portion of each operator's fleet that is engaged in foreign air commerce. For example, one such method would be the number of takeoffs and landings, during a representative base period, that were conducted by an operator's fleet in foreign air commerce as a percentage of the total takeoffs and landings of that fleet (in foreign and other air commerce) during that base period. This amendment does not prejudge the method of apportionment that may be most appropriate for each fleet.

B. *Airplanes Weighing 75,000 Pounds or Less.*

As noted above, the EPA proposal applied to all civil subsonic turbojet engine-powered airplanes regardless of the weight of those airplanes. In Notice 75-5, the EPA expressed its belief that all of those aircraft which currently do not meet the noise levels of Part 36, ". . . are capable of meeting those levels by applications of various retrofit or re-engine options." EPA noted that "[s]ince all newly produced airplanes of that type (less than 75,000 pounds) must comply after January 1, 1975, with the noise levels prescribed in Part 36 (§§ 21.183(e) and 36.1(d)) of the Federal Aviation Regulations, there appears to be no valid justification to permit those airplanes in the existing fleets to be operated indefinitely at their present noise levels."

One commenter stated that retrofit solutions are available for all general aviation aircraft either in the form of noise suppressors, retrofits to the engines and nacelles, or retrofit powerplants. On the other hand, many others asserted that applying the requirements of Part 36 to aircraft weighing less than 75,000 pounds is unrealistic from a technological standpoint. In this connection, a number of commenters stated that "hush kits" have not been developed for their aircraft. One of those observed that, even if such a kit were developed for its aircraft, it would need tradeoffs to achieve compliance with Part 36. Others stated, in essence, that more time is needed for development of appropriate kits, one noting that the kits are in the engineering and development stages and in most cases there is no evidence as yet that they will function properly or be available in time to meet the compliance date. Also questioning the performance of available technology, another comment stated that the only "hush kit" available for small jet aircraft is of questionable value with respect to performance, safety, maintainability, and noise suppression capability.

Some persons based their objections on grounds that large airplanes, rather than those weighing less than 75,000 pounds, are responsible for the noise problem. Contending that large air carrier aircraft are the major cause of the problem, one commenter concluded that aircraft weighing less than 75,000 pounds should be given consideration in a separate notice of proposed rule making. Others argued that, if cumulative noise is the problem, scheduling is more significant than noise levels. In this regard, one commenter observed that business jet operations are sporadic while constant commercial operations at some airports are the cause of the noise problem. Based on this consideration, that commenter asserted that the public health and welfare is not endangered at the airports where jet operations are intermittent.

Some commenters cited operational noise abatement procedures as an alternative to compliance with Part 36 noise levels for aircraft weighing less than 75,000 pounds. Noting that testing of those procedures is going on at the present time and that positive results have been realized, one commenter asserted that more testing should be conducted to determine if there is a realistic alternative to compliance with the stringent regulatory requirements of Part 36. Another commenter contended that noise abatement procedures would be a realistic alternative if appropriate fines were levied on persons failing to observe those procedures. Operating procedures were also advocated by a commenter who argued that noise suppression devices, among other things, reduce energy efficiency and should not be required.

Other comments expressed the view that Part 36 requirements for business aircraft are unnecessary or, at the very least, should be delayed. With regard to necessity, several persons stated that normal attrition will eliminate the need to modify those aircraft. One commenter suggested that, to minimize the burden on industry, noise suppression should be accomplished when engine overhaul or replacement becomes necessary. Several persons suggested that plans to retrofit aircraft should be abandoned and that noise abatement should be focused on the next generation of small aircraft. This argument is based on their belief that, due to the new emission standards soon to become effective, many aircraft may have a useful life of two years or less.

Finally, many comments submitted in response to the proposal addressed the issue of economic reasonableness. In this connection, many persons asserted that the substantial cost of compliance is unreasonable in view of the minimal reduction in noise that would be realized, or asserted that the cost of substantial reductions in noise levels would be excessive. Also focusing on the cost of compliance, others stated that retrofit or re-engining would, in some cases, exceed the value of the airplanes to be modified, and would cause operators to dispose of their aircraft with resulting negative effects on employment and the economy. Still others stated that the proposal is unfair since it would be more restrictive and costly when applied to business and corporate aircraft than when applied to large, commercial aircraft.

As stated above, the FAA does not regard operational noise abatement procedures as a viable alternative to retrofit or related means of noise suppression at the source. On the contrary, retrofit or re-engining are a means to achieve compliance with Part 36 noise requirements at the time of certification. Operational noise abatement procedures are considered an appropriate means to further reduce noise where circumstances warrant.

On the other hand, the FAA believes that the noise reduction benefits, technological practicability, cost effectiveness, and economic impact of applying the proposed requirements, across the board, to all turbojets weighing 75,000 pounds or less have not yet been adequately determined.

As noted above, § 611(d) of the Act requires the FAA to consider whether its noise regulations are economically reasonable, technologically practicable, and appropriate to the particular type of aircraft to which they apply. The FAA has determined that there are noise reduction modifications that can be applied, during the original design and manufacturing of the smaller turbojet types, in a manner that complies with Part 36 consistent with the economic and technological constraints of § 611(d). However, in many cases, these modifications involve re-engining or other substantial redesign efforts that, while reasonable when spread over the production run, appear at this time to be of doubtful cost effectiveness if accomplished by retrofit. Unlike the economics of the mass fleet modification of heavy air carrier aircraft, or the economics of aircraft type design changes incorporated during the original manufacturing process, there is as yet no clear evidence that currently operating business or private jets weighing 75,000 pounds or less can be taken out of operation and retrofitted in an economically reasonable manner. This conclusion also applies with respect to regulatory action that might force the retirement of these aircraft. Unlike the larger aircraft types, for which the replacement or modification options have been shown to be reasonable and practicable under the terms of this amendment, more must be known regarding the economic factors involved in the application of operating noise limits to turbojets weighing 75,000 pounds or less. Many of the smaller turbojets are the major aeronautical investment of the corporations they serve. They are frequently the only airplane, or one of very few airplanes, owned by the operator. These airplanes are extremely varied in their missions. Their operating economics have not yet been summarized, in sufficient depth, to permit an adequate assessment of the probable impact of an across-the-board post-certification retrofit requirement. The supply problems affecting the small engine manufacturers also require further study before the overall impacts of specific compliance dates can be assessed.

In view of the fact that the retrofit of currently operating turbojet airplanes weighing 75,000 pounds or less would in most cases involve new airplane design and development programs, and considering that such major redesign involves the need for further data concerning the effects of such retrofit on safety, fuel consumption, flight performance, operating economics, maintenance, and emission propagation, the FAA concludes that operating noise limits for turbojet airplanes weighing 75,000 pounds or less cannot be adopted at this time in a manner that is fully consistent with the constraints in § 611(d) of the Act. However, the FAA is expanding its comprehensive analysis of the public impact of aircraft noise. This effort is part of a broad FAA review of the national aviation system aimed at determining the environmental benefits and related costs of source noise controls, operating procedures, and land use planning. This study includes investigations of the noise impacts of different aircraft classes (including the smaller business jets), new technology that might be applied in each class, and forecasts of the growth of each class. As the results of this study become available over the next two years, FAA will undertake such further actions as may be appropriate.

Authority: [Sections 307, 313(a), 601, 603, 604, and 611, Federal Aviation Act of 1958 (49 U.S.C. §§ 1348, 1354(a), 1421, 1423, and 1424, and 1431 as amended by the Noise Control Act of 1972 (Pub. L. 92-574)); Section 6(c), Department of Transportation Act (49 U.S.C. § 4321 et seq.); Executive Order 11514, March 5, 1970.]

In consideration of the foregoing, the Federal Aviation Administration hereby takes the following actions based on Notice 74-14, and in response to the proposed regulation submitted to it under § 611(c)(1) of the Act by the U.S. Environmental Protection Agency which was published as Notice 75-5 (40 FR 8218; February 26, 1975), regarding operating noise requirements for civil subsonic turbojet engine-powered airplanes:

(1) In accordance with § 611(c)(1)(B) of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1431(c)(1)(B)), Notice is hereby given that, for the reasons stated in Section VI, above, the Federal Aviation Administration is not prescribing regulations, at this time, in response to the portions of the proposals submitted by EPA and contained in Notice 75-5 regarding the adoption of operating noise limits for turbojet airplanes having maximum weights of 75,000 pounds or less and for airplanes engaged in foreign air commerce.

(2) In accordance with § 611(c)(1)(A) of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1431(c)(1)(A)), Part 91 of the Federal Aviation Regulations (14 CFR Part 36) is amended, effective January 24, 1977, by adding a new Subpart E.

The FAA has determined that this document contains a major action requiring the preparation of an inflation impact statement under Executive Order 11821 and OMB Circular A-107 and certifies that an inflation impact statement has been prepared.

Preamble Clarification to Amendment 91-136

Subpart E—Operations Noise Limits [NEW]

Phased Compliance With Part 36 Noise Limits By Certain Turbojets With Maximum Weights Greater Than 75,000 Pounds

Adopted: March 10, 1977 **Effective: January 24, 1977**

(Published in 42 FR 18462, March 17, 1977)

On December 23, 1976, the Federal Aviation Administration (FAA) published an amendment to Part 91 of the Federal Aviation Regulations (FARs) entitled "Phased Compliance with Part 36 Noise Limits by Turbojets with Maximum Weights Greater than 75,000 Pounds" (FR Doc. 76-3765; 41 FR 56046). Subsequent review of the preamble to that rule revealed that a clarification should be made regarding a discussion in that document of the noise reduction benefits reflected in the Environment Impact Statement (EIS), issued in conjunction with the amendment. That discussion appeared in the last paragraph on page 56051.

The FAA believes that the discussion oversimplifies the nature and significance of the data contained in Table II-1 of the EIS. In particular, the absolute magnitude of the levels of noise reduction for certain aircraft under Part 36 certification conditions may be misunderstood. Accordingly, the last full sentence on page 56051, which begins, "With respect to takeoff noise . . ." is deleted and the following words substituted therefor:

> "The absolute magnitude of the reduction in effective perceived noise decibels (EPNdB) for the various affected aircraft is shown in Table II-1 of the EIS."

Since this action is clarifying in nature and does not affect the rule as adopted, notice and public procedure under 5 U.S.C. 553 are not required.

(Secs. 313(a), 601, 603, and 611, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, 1427, and 1431); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)); Title I, National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.; and E.O. 11514 March 5, 1970).

Amendment 91–137

Incorporation by Reference

Adopted: April 21, 1977 **Effective: May 2, 1977**

(Published in 42 FR 22139, May 2, 1977)

SUMMARY: The purpose of this amendment is to incorporate by reference Annex 2 to the Convention on International Civil Aviation and make it a part of § 91.1 as provided by statute and regulation.

FOR FURTHER INFORMATION CONTACT: Mr. Robert G. Leary, Air Carrier and General Operating Branch, Regulations and Enforcement Division, Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 426-8081.

SUPPLEMENTARY INFORMATION: By virtue of § 91.1(b)(1), each person that operates a civil aircraft of United States registry outside of the United States is required, when over the high seas, to comply with Annex 2 (Rules of the Air) to the Convention on International Civil Aviation (Annex 2) and with §§ 91.70(c) and 91.90 of Subpart B of Part 91. Annex 2 has not been published in the Federal Register and, because of the length and complexity of the Annex and because it is periodically amended, its publication as an appendix to Part 91 would be impractical and expensive.

As provided by statute (5 U.S.C. 552(a)(1)) and the Regulations of the Office of the Federal Register (1 CFR Part 51), matter reasonably available to the class of persons affected thereby is deemed published in the Federal Register when incorporated by reference therein with the approval of the Director of the Federal Register. Approval for incorporation by reference of Annex 2 has been obtained from the Director of the Federal Register and is available in the FAA Rules Docket for examination by interested persons.

Annex 2 is currently available for inspection at the FAA Rules Docket, AGC-24, 800 Independence Avenue, S.W., Washington, D.C. 20591.

Since this amendment is necessary to make the Federal Aviation Regulations conform to 5 U.S.C. 552(a)(1) and 1 CFR Part 51, and does not impose an additional burden on any person, I find that notice and public procedure thereon are unnecessary and that good cause exists for making this amendment effective on less than 30 days notice.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective May 2, 1977, by adding a new paragraph (c) to § 91.1.

(Sec. 313(a) and 601 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a) and 1421); sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)) and 5 U.S.C. 552(a)(1)).

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended, and OMB Circular A-107.

NOTE: The incorporation by reference in the preceding document was approved by the Director of the Federal Register on March 23, 1977. A copy of the incorporated material is on file in the Federal Register Library.

Amendment 91–138

Operations Review Program Amendment No. 2: Rotorcraft External-Load Operations

Adopted: May 3, 1977 **[Effective: June 25, 1977] ***

(Published in 42 FR 24196, May 12, 1977)

SUMMARY: These amendments require all rotorcraft external-load operations to be conducted under Part 133 whether or not they are conducted for compensation or hire, thus allowing restricted category rotorcraft to be operated for compensation or hire under Part 133.

*(See Amdt. 91–140 for change of effective date of Amdt. 91–138)

This amendment resulted from proposals from the Aerial Crane Operators Committee (ACO) recommending that restricted category rotorcraft external-load operations be conducted under the provisions of Part 133 and that Part 91 be amended to allow those operations to be conducted for compensation or hire.

FOR FURTHER INFORMATION CONTACT: Mr. D. A. Schroeder, (AFS-901), Safety Regulations Division, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone: (202) 755-8715.

SUPPLEMENTARY INFORMATION: Interested persons have been given an opportunity to participate in the making of these amendments by a Notice of Proposed Rule Making (Notice 75-38; 40 FR 54188; November 20, 1975). In addition, pursuant to a notice of hearing (Notice 75-38A; 41 FR 7517; February 19, 1976) the FAA held two public hearings on Notice 75-38 (Washington, D.C. on March 18, 1976, and Seattle, Washington on March 25, 1976). The FAA also extended the comment period so that relevant comments submitted during and after the hearings could be considered. Each comment received in response to Notices 75-38 and 75-38A has been considered in the adoption of these amendments. Except where changes are specifically discussed, these amendments and the basis for them are the same as those contained in Notice 75-38.

On February 12, 1974, the FAA issued an invitation to submit proposals for consideration during the Airworthiness Review Program (Notice 74-5; 39 FR 5785; February 15, 1974). Two proposals were received from the ACO recommending that restricted category rotorcraft external-load operations be conducted under the provisions of Part 133, and that Part 91 be amended to allow those operations to be conducted for compensation or hire.

On February 26, 1975, the FAA issued an invitation to submit proposals for consideration during the Operations Review Program (Notice 75-9; 40 FR 8685; February 28, 1975). The FAA then published a Compilation of Proposals (see Notice 75-9A; 40 FR 24041; June 4, 1975) that would be considered as possible agenda items for the Operations Review Conference held December 1-5, 1975. Included in the Compilation were proposals to bring all rotorcraft external-load operations under Part 133.

The proposals ACO submitted for the Airworthiness Review were deferred for consideration with proposals that also concerned rotorcraft external-load operations appearing in the Operations Review Compilation. The proposals contained in Operations Review Program Notice No. 1 (Notice 75-38; 40 FR 54188; November 20, 1975) are generally based on the FAA's evaluation of proposals submitted for both the Airworthiness and Operations Reviews:

Proposal No.	*Review*	*FAR*	*Proponent*
495	—Airworthiness—	§ 91.39	ACO
540	—do—	§ 133.19	ACO
218	—Operations—	§ 91.39	FAA
219	—do—	§ 91.39	FAA
697	—do—	§ 133.1	FAA
698	—do—	§ 133.11	FAA
699	—do—	§ 133.13	FAA
700	—do—	§ 133.17	FAA
701	—do—	§ 133.19	FAA
703	—do—	§ 133.32	FAA

Specifically, Notice No. 75-38 proposed amending Parts 91 and 133 of the Federal Aviation Regulations (14 CFR Parts 91 and 133) to: (1) require that all rotorcraft external-load operations, currently conducted under Part 91, be conducted under Part 133 regardless of whether they are conducted for compensation or hire; (2) prescribe appropriate operating limitations for restricted category rotorcraft external-load operations under that Part; (3) provide that Operator Certificates issued under Part 133 be effective for 24 months; and (4) except rotorcraft external-load operations from the requirement in § 91.39 which prohibits the operation of restricted category civil aircraft carrying persons or property for compensation or hire.

Because many of the comments received in response to Notice 75-38 discussed the merits of "standard" and "restricted" rotorcraft, a brief explanation of these terms is in order. A "standard" rotorcraft is one having a normal, utility, acrobatic or transport category type certificate issued under §§ 21.21, 21.27, or 21.29, and having a standard airworthiness certificate issued under § 21.183. These rotorcraft are often called "standard category" rotorcraft, and they are identified that way in the following discussion. A "restricted" category rotorcraft is one having a restricted category type certificate issued under § 21.25 and having a restricted category airworthiness certificate issued under § 21.85. They are called "restricted category" rotorcraft in the following discussion.

The proposal to amend § 91.39(b) and § 91.39(d) drew strong objections, primarily from those operators now certificated under Part 133. Those who oppose this change contend that the FAA would create an unsafe condition by allowing the use of restricted category (particularly military surplus) rotorcraft in Part 133 operations for compensation or hire. They argue that the current distinction between rotorcraft external-load operations conducted in restricted category rotorcraft and those conducted in standard category rotorcraft should be retained. They contend that the operating limitations proposed in Notice 75-38 are inadequate to provide an equivalent level of safety when restricted category rotorcraft are allowed to operate under Part 133.

Restricted category rotorcraft do not comply with all the airworthiness standards in Part 27 for normal category rotorcraft or in Part 29 for transport category rotorcraft. They are type certificated to airworthiness standards that are less stringent than those applicable to be a standard category rotorcraft. Under § 21.25, an applicant is entitled to a type certificate for rotorcraft in the restricted category for special purpose operations if he shows that no feature or characteristic makes the rotorcraft unsafe when it is operated under the operating limitations prescribed for its intended use. In addition, § 21.27 allows certain surplus military aircraft to be certificated in the standard category if the applicant shows compliance with the applicable airworthiness certification standards.

Some restricted category rotorcraft brought under Part 133 are surplus military helicopters which have no civil counterpart. The Armed Services specify aircraft requirements and performance capabilities when soliciting aircraft construction bids that are directly and uniquely related to a particular military mission. The mission for a military rotorcraft (and particularly for external-load operations) may be quite similar to the mission of a civil rotorcraft. Other military requirements, however, specify equipment and structural changes that are not appropriate in an aircraft designed for civil use. These requirements may or may not improve the reliability or increase the safety aspects of the aircraft. Thus, while safety is a consideration in designing an aircraft manufactured for military use, it is not an overriding determinant. Therefore, some items must be changed when converting a surplus military rotorcraft to meet the civil requirements.

At the public hearings held in Washington, D.C., and Seattle, Washington, certain commenters argued that the operating limitations in proposed § 91.39(d) were not stringent enough. Essentially, they urged that external-load operations with restricted category rotorcraft should not be conducted over densely populated areas.

The FAA has long held that public demand for a specific kind of aircraft operation (evidenced in this proceeding by numerous commenters strongly in favor of Notice 75-38) warrants a balanced set of airworthiness standards and operating rules which will ensure an appropriate level of safety. Based on the comments received and the record of the two public hearings held on Notice 75-38, the FAA has concluded that the operating limitations for restricted category rotorcraft proposed in the notice must be strengthened. The safety of persons and property on the surface will be adequately protected by prohibiting restricted category rotorcraft external-load operations over a densely populated area, in a congested airway or near a busy airport where passenger transport operations are conducted. These limitations are identical to those in § 91.39(d) that now apply to the operation of each restricted category aircraft.

In view of the differences between the airworthiness requirements applied to standard and restricted category rotorcraft, the FAA has adopted the limitations discussed above in a new § 133.45(e) (rather than in § 91.39(d), as proposed). Those limitations do not apply to external-load operations conducted by standard category rotorcraft. The FAA has concluded that this amendment and the standards now contained in Part 133 will maintain an appropriate level of safety.

In Notice 75-38, the FAA proposed to amend § 91.39(b) to except rotorcraft external-load operations from the prohibition against operating a restricted category rotorcraft for compensation or hire. On further study, the FAA believes that this change may cause a misunderstanding. The FAA intends to make Part 133 applicable to all non-passenger-carrying civil rotorcraft external-load operatoins conducted in the United States by any person other than as an air carrier (see § 133.1). The FAA does not intend to allow these operations with restricted category rotorcraft under § 91.39 beyond the grace period provided in § 133.11(b). Accordingly, the FAA is adopting a new § 91.39(f) which makes that section inapplicable to Part 133 operations after the grace period expires.

Commenters on both sides of the question of whether or not restricted category rotorcraft should be allowed to operate under Part 133, submitted accident report data in an attempt to support their position. Each side used the data to buttress their arguments that restricted category rotorcraft are either more or less safe than standard category rotorcraft when used in external-load operations. However, the accident data submitted lacked a delineation of aircraft population and exposure figures. Such data is not available from any known source. Therefore, the FAA could make no valid comparison or draw supportable conclusions on the sole basis of the data presented or otherwise available.

Notice 75-38 proposed to amend § 133.1 (Applicability) to make Part 133 applicable to all rotorcraft external-load operations whether or not the operation is conducted for compensation or hire. As adopted, a nonsubstantive editorial change to § 133.1 clearly indicates that Part 133 applies only to civil rotorcraft, and not to public rotorcraft operations.

Several commenters questioned the sufficiency of the 120 days allowed in proposed § 133.11 for issuance of a Rotorcraft External-Load Operator Certificate. These commenters expressed concern that the FAA could not conduct the necessary pre-certification inspections and process the resulting paperwork within the period proposed. The FAA does not agree.

The 120-day period in § 133.11 is adequate to process the anticipated number of applications for Rotorcraft External-Load Operator Certificates. Each operator will apply to the Flight Standards district office having jurisdiction over the area in which the applicant's home base of operation is located. No one district office will be responsible for all applications. In determining a suitable time period for certification of previously uncertificated operators, the FAA also considered the benefits to be derived from Part 133 certification. The FAA believes these benefits should be provided as soon as possible after these amendments become effective. Accordingly, § 133.11 allows 120 days for those operators who now operate under Part 91 to apply for and be issued a certificate under Part 133. They are not allowed, however, to operator for compensation or hire until they have been certificated under Part 133.

The proposal to amend § 133.13 to limit the duration of a Part 133 certificate to 24 calendar months drew objections from several commenters. They contended that the proposal was merely an unjustified encroachment of the FAA on rotorcraft external-load operations, and would impose administrative burdens on both the operators and the FAA. Other commenters stated that the proposals would be acceptable if the renewal process was simple and conducted expeditiously by district offices.

In proposing to limit the duration of a Part 133 certificate in § 133.13, the FAA considered the impact of the action on the inspection and administrative workload of Flight Standards district offices. The increased workload will not be so substantial as to have an adverse effect on the effectiveness of the certification program. Limiting the duration of Part 133 certificates to 24 calendar months, with attendant renewal requirements, will enable district offices to exercise the necessary control over the certificate holders and particularly over the new certificate holders who will not be certificated under Part 133. In addition § 133.13 is amended to provide that a certificate issued before the effective date of this amendment remains in effect for up to 24 calendar months after that date.

Although not treated in the notice, § 133.31(f) must be amended to make it clear that standard category rotorcraft may continue to be operated over congested areas. This is necessary, because § 133.45(e) as adopted prohibits restricted category rotorcraft external-load operation over a densely populated area, in congested airway or near a busy airport where passenger transport operations are conducted.

No adverse comments were received on the proposed change to § 91.79(c) which would except rotorcraft used in Part 133 external-load operations from the minimum altitude requirements of that section. On further study, the FAA has determined that it is more appropriate to provide this relief through an amendment to § 133.31. A similar approach was taken with respect to agricultural operations in § 137.49, and keeps the number of cross-references to other Parts to a minimum in Part 133.

A proposed change to § 133.43(c) would apply the weight and center of gravity limitations of that section to rotorcraft type certificated in the restricted category under § 21.25. This is no longer necessary because § 133.43 was amended as part of the Airworthiness Review Program (see Amendment No. 133-5; 41 FR 55454; December 20, 1976).

No adverse comments were received on the proposed change to § 133.51. This amendment will confine the applicability of § 133.51 to a standard category rotorcraft. A separate airworthiness certificate is not necessary for rotorcraft certificated in the restricted category for the purpose of carrying external loads.

In addition to the major revisions to Part 133 discussed above, other minor or clarifying changes have been made that were not discussed in Notice 75-38. Section 133.15 is amended to include certificate renewal procedures similar to the procedures currently in that section for initial certification. Section 133.19 is amended to clarify the fact that the exclusive use prerequisite to Part 133 certification requires a rotorcraft with either a valid standard category or a valid restricted category airworthiness certificate.

Interested persons have been afforded an opportunity to participate in the making of this rule, and due consideration has been given to all relevant matter presented.

The principal authors of this document are Clifford L. Weaver, Flight Standards Service, and Richard B. Elwell, Office of the Chief Counsel.

Accordingly, Parts 91 and 133 of the Federal Aviation Regulations (14 CFR Parts 91 and 133) are revised, effective August 10, 1977.

(Secs. 307, 313(a), 601, 603, and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), 1421, 1423 and 1427), and sec. 6(c)) of the Department of Transportation Act (49 U.S.C. 655(c)).)

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, 11949, and OMB Circular A-107.

Amendment 91-139

Crashworthiness; Installation of Shoulder Harnesses in Small Airplanes

Adopted: June 9, 1977 **Effective: July 18, 1977**

(Published in 42 FR 30601, June 16, 1977)

SUMMARY: This amendment adds requirements concerning shoulder harnesses and compartment interior design for the type certification of small airplanes and adds an operating rule requiring a shoulder harness for each front seat in certain newly manufactured small airplanes. This amendment is intended to improve the crashworthiness of small airplanes and was prompted by a recommendation of the National Transportation Safety Board (NTSB) and a petition for rule making submitted by Mr. Ralph Nader.

FOR FURTHER INFORMATION CONTACT:

Raymond E. Ramakis
Regulatory Projects Branch, AFS-940
Federal Aviation Administration
Washington, D.C. 20591
Telephone (202) 755-8716

SUPPLEMENTARY INFORMATION: These amendments are based on the Notice of Proposed Rule Making (Notice No. 73-1) published in the Federal Register on January 31, 1973, (38 FR 2985). Numerous comments relating to these proposals were received in response to the Notice and except for those indicating agreement or merely repeating issues discussed and disposed of in the Notice, the FAA's disposition of the significant comments is discussed below. In general, comments received that were beyond the scope of the Notice are not discussed. Based on the relevant comments and upon further review by the FAA, a number of the proposals have been dropped or changed. In addition, various nonsubstantive changes of a clarifying and editorial nature have been made. Since these changes impose no additional burden on any person, they may be adopted without further notice and public procedure.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matter presented.

A substantial number of commentators objected to the proposed rules that would require fastening of the harness, and a large number suggested that harness installation be optional. In addition, several commentators stated that the Notice seemed to assume that there is merit in wearing harnesses without citing any studies to support that view. One recommended that the Notice be withdrawn pending the results of NASA and FAA crash testing of complete general aviation airplanes. Contrary to the commentators' allegations, the FAA believes that sufficient data and information exists on which to base shoulder harness requirements for small airplanes. The changes being made are based primarily on the results and conclusions of small airplane accident investigations. Information regarding specific accidents is available in documents published by the National Transportation Safety Board such as the "Annual Review of General Aviation Accidents." In addition, a summary of test information on seats, belts, harnesses, as well as entire airplanes, is included in FAA Technical Report No. FS-70-592-120A, "A Summary of Crashworthiness Information for Small Airplanes," dated February 1973. Furthermore, data which substantiate the premise that use of a harness will increase safety sufficiently to warrant a change in FAR Part 23 are contained in FAA Report No. FAA-AM-71-3, "General Aviation Structures Directly Responsible for Trauma in Crash Decelerations," dated January 1971. With respect to deferring rule making pending the results of crash testing, the FAA does not believe delay is advisable since crashworthiness investigation, testing, and analysis is a continuous process, and updating of rules can be accomplished as new information becomes available should later revisions be warranted.

In connection with the foregoing, after further FAA review in light of the comments received, a number of the proposals have been withdrawn or substantially revised.

Proposed § 23.785(g) would require the installation of a shoulder harness at each forward facing seat and at each sideward facing seat for type certification. However, the FAA's analysis of the cost benefit considerations show that small airplanes are operated mostly with only the front seats occupied and the cabin structure surrounding the occupants of seats other than front seats can be designed to be very effective in protecting occupants during minor crash landings. Based on this and the many adverse comments to proposed § 23.785(g), the FAA has determined that, at this time, shoulder harness installations on seats other than the front seats should not be required under FAR Part 23. Accordingly, the proposal has been revised to require shoulder harness installations only on front seats. Front seats in this context are seats located at flight crewmember stations or seats located alongside such a seat. For clarity a definition of "front seat" has been added to the rules being adopted herein.

Proposed § 23.785(g) would also require that rearward and certain sideward facing seats have energy absorbing rests. A similar provision currently exists as an optional requirement in § 23.785(g)(3) for all seats. Based on a further assessment of the proposed requirements, the FAA has determined that the energy absorbing rest requirement is not necessary since compliance with the requirements of §§ 23.785(g) and (j), as adopted herein, assures adequate cabin occupant safety. The proposed energy absorbing rest requirement has, therefore, been withdrawn.

The proposed type certification requirement in § 23.785(j) concerns delethalization of the cabin area surrounding each seat within striking distance of the occupant's head, torso, arms, and legs. However, information now available to the FAA indicates that fatalities during minor crash landings are primarily due to head and torso injuries. Also, most serious injuries during minor crash landings are limited to the head and torso. Furthermore, confining the provision to the head and torso would reduce the burden of compliance and simplify compliance determinations. The FAA has therefore determined that the requirement should not be applicable to arms and legs, and the proposed rule has been changed accordingly.

A number of comments were adverse to the proposed operating requirements in §§ 91.7 and 91.14 that would require fastening of shoulder harnesses. Based on these comments, the FAA has reevaluated the need for the proposed requirements, and the proposed passenger shoulder harness fastening requirement of § 91.14 has been withdrawn. In addition, proposed § 91.7 has been revised to require the fastening of shoulder harnesses by flight crewmembers only during takeoff and landing; however, it would not be required if it would interfere in the performance of required duties.

A further operating requirement proposed in § 91.14 would have required the pilot to ensure that each person aboard the aircraft be given certain instructions and notifications regarding restraint equipment and to ensure proper securing of equipment at unoccupied seats. However, the requirements for shoulder harnesses on other than front seats and on other than newly manufactured airplanes have been withdrawn, as discussed in connection with §§ 91.33 and 91.39. In this light and since the fastening of shoulder harnesses will not be mandatory except with respect to flight crewmembers, the benefits expected from the operating requirements proposed in § 91.14 no longer are sufficient to warrant the adoption of the proposals. The proposals have therefore been withdrawn.

The proposed operating rules in §§ 91.33(b)(13) and 91.39(f) would have required, in effect, that small airplanes either be placarded to indicate lack of structural provisions for the attachment of shoulder harnesses or be equipped with shoulder harnesses. Subsequently, a number of comments received in response to Notice 73–1 indicated strong opposition to a rule requiring the installation of shoulder harnesses in small airplanes currently in service. In light of these comments, a cost analysis was conducted by the FAA which indicated that a substantial financial burden would be imposed upon many consumers over a short period of time if the proposals were to be adopted. Based on this cost analysis and a review of the benefits expected from the proposal, the FAA has determined that the decision of whether to install shoulder harnesses in small airplanes now in service or to install shoulder harnesses at seats other than front seats should be left to the owner. Therefore, the proposal has been revised to require the installation of shoulder harnesses only on the front seats of airplanes that are manufactured after one year after the effective date of the amendment.

A number of commentators contended that it would be unreasonable to expect any occupant protection system to prevent minor scratches or bruises in a crash landing, and recommended revising proposed §§ 23.785 and 91.33 to require protection against serious injury or serious head injury rather than protection against any degree of injury. In this connection, current §§ 23.561, 25.561, and 25.785 use the criteria of serious injury. The FAA agrees and proposed §§ 23.785, 91.33, and 91.39 have been revised accordingly.

One commentator contended that § 23.785(j) should be eliminated as it is too general to be a workable, enforceable or effective standard. The FAA does not agree. Section 23.785(j) as adopted will require elimination of obvious injurious objects and require that instrument panels be designed to prevent injuries. In applying the rule, since the movement of a restrained occupant under design inertia loads and the impact velocity on an interfering structure can be predicted, and since the body tolerances and energy to be absorbed are known, the major items subject to contact can be designed to prevent serious injury.

One commentator recommended changing the parenthetical portion of proposed § 23.785(j) to read "(with the safety belt and shoulder harness fastened)", because it would be inconsistent to require shoulder harnesses and at the same time provide protection in the space a passenger might occupy without the harness. The FAA does not agree. A shoulder harness does not protect against side loads, nor does it constrain the head. Also, the proposed rule concerning shoulder harnesses has been revised to require a shoulder harness only for each front seat.

One commentator indicated that use of restraints and padding would reduce safety by reducing the visibility of, and accessibility to, controls and instruments on the part of pilots, and by interfering with evacuation of airplanes by passengers. The FAA does not agree since it is feasible to provide in new designs the protection specified without a significant decrease in visibility and accessibility. While in a specific case some compromise during design may have to be made, the FAA has determined that the benefits to be derived with regard to improved safety through proper restraints and cabin delethalization would in general far outweigh any detrimental effects resulting from reduction in visibility and accessibility.

Several commentators expressed concern that the shoulder harness and cabin design resulting from the proposed requirements would be restrictive, inadequate, or ineffective for certain sizes of occupants or crew. The FAA agrees that harness installations designed primarily for adults may not be effective for children or other small persons, but the seat belt portion of the restraint would nevertheless constrain a small person on whom the shoulder harness cannot be properly fitted within the space envelope of protection provided for adults with the harness fastened. No change has been made as a result of these comments.

The FAA has determined, based on an evaluation of the expected benefits and other impacts on the public and private sectors, that the adoption of this amendment will result in a significant improvement in the chances of occupants of small airplanes covered by the amendment to survive minor crash landings and provide those occupants additional protection in more severe crashes at a nominal cost. Over the next 25 years, it is estimated that approximately 1,875 lives may be saved by this amendment at an average cost of less than $5.5 million per year.

The principal authors of this document are Heinz J. Hellebrand, Flight Standards Service, and Samuel Podberesky, Office of the Chief Counsel.

Accordingly, Parts 23 and 91 of the Federal Aviation Regulations (14 CFR Parts 23 and 91) are amended effective, July 18, 1977.

[Sections 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, and 1423); Section 6(c), Department of Transportation Act (49 U.S.C. 1655)c))].

The FAA has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91–140

Operations Review Program Amendment No. 2: Rotorcraft External-Load Operations—Amended Effective Date

Adopted: June 22, 1977 **Effective: June 25, 1977**

(Published in 42 FR 32531, June 27, 1977)

SUMMARY: This amendment changes the effective date of recent amendments to rotorcraft external-load operations from August 10, 1977, to June 25, 1977, to allow operators who are capable of meeting the requirements at this earlier date to do so. This amendment results from requests submitted by affected parties.

FOR FURTHER INFORMATION CONTACT:

Mr. D. A. Schroeder, Safety Regulations Division,
Federal Aviation Administration, 800 Independence Avenue, SW.,
Washington, D.C. 20591; telephone: (202) 755-8715.

SUPPLEMENTARY INFORMATION:

BACKGROUND

On May 3, 1977, the FAA issued amendments to Parts 91 and 133 of the Federal Aviation Regulations (Amendment Nos. 91–138 and 133–6; published in the FEDERAL REGISTER (42 FR 24196) on May 12, 1977) to become effective August 10, 1977. These amendments: (1) require all rotorcraft external-load operations to be conducted under Part 133 whether or not they are conducted for compensation or hire, and regardless of the airworthiness category under which the rotorcraft is typed certificated; (2) authorize the operation of restricted category civil rotorcraft under Part 133 with certain limitations on the areas in which they may be operated; (3) make a Rotorcraft External-Load Operator Certificate issued under Part 133 effective for 24 calendar months; and (4) provide that after December 9, 1977, § 91.39 would not apply to non-passenger-carrying civil rotorcraft external-load operations conducted under Part 133. These amendments were based on notices of proposed rule making, Notice 75–38 and Notice 75–38A published in the FEDERAL REGISTER (40 FR 54188) on November 20, 1975, and (41 FR 7517) February 19, 1976, respectively.

REVIEW OF EFFECTIVE DATE

The FAA has received comments from Mr. Peter Wright, President, Keystone Helicopter Corporation, and A. J. Samuelson, American Electric Power Corporation, indicating that certain external-load operators having rotorcraft certificated in the restricted category and who are otherwise capable of meeting the certification requirements of Part 133 at an earlier date, would not be able to conduct external-load projects for compensation or hire until August 10, 1977. Their comments stated that the summer season is the heavy season for construction work when heavy lift external-load rotorcraft are used and requested that the effective date of Amendment Nos. 91–138 and 133–6 be changed to June 25, 1977.

When the FAA adopted Amendment Nos. 91–138 and 133–6, it believed that a period ending August 10, 1977, was needed to develop, print, and distribute new Rotorcraft External-Load Operators Certificates and change FAA handbooks to implement the new requirements.

However, since the publication of the amendments, the FAA has determined that the present FAA Rotorcraft External-Load Operators Certificates can be used. Additionally, all FAA General Aviation and Flight Standard district offices will have the appropriate handbook guidelines by June 25, 1977.

In view of the fact that this amendment relieves a restriction and since there exists an almost immediate need for the type of operation contemplated by the rule, I find that notice and public procedure hereon are impractical and unnecessary, and good cause exists for making this amendment effective in less than 30 days.

The principal authors of this document are Thomas G. Walenta, Flight Standards Service, and Richard B. Elwell, Office of the Chief Counsel.

Accordingly, effective June 25, 1977, Amendment Nos. 91-138 and 133-6 are amended as follows:

1. In the regulations published on May 12, 1977 (42 FR 24196), delete the effective date "August 10, 1977," and substitute for it the effective date "June 25, 1977."

2. In paragraph (b) of § 133.11, delete the date "August 10, 1977" and substitute for it the date "June 25, 1977."

3. In § 133.13, delete the date "August 10, 1977" and substitute for it the date "June 25, 1977."

(Secs. 307, 313(a), 601, 603, and 607 of the Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), 1421, 1423, and 1427), and sec. 6(c) of the Department of Transportation Act (49 U.S.C. 655(c)).)

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91–141

Airworthiness Review Program
Amendment No. 5: Equipment and Systems Amendments

Adopted: July 11, 1977 **Effective: September 1, 1977**

(Published in 42 FR 36960, July 18, 1977)

SUMMARY: The purpose of these amendments is to update and improve the airworthiness standards applicable to aircraft equipment and systems and to make related changes in the operating rules. These amendments are part of the Airworthiness Review Program.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: These amendments are the fifth in a series of amendments to be issued as part of the Airworthiness Review Program. The following series of amendments have previously been issued as part of this Airworthiness Review Program:

Title	*FR citation*
Form number and clarifying revisions	(40 FR 2576; January 14, 1975)
Rotorcraft anticollision lights standards	(41 FR 5290; February 5, 1976)
Miscellaneous amendments	(41 FR 55454; December 20, 1976)
Powerplant amendments	(42 FR 15034; March 17, 1977)

These amendments are based on two Notices of Proposed Rule Making—Notice 75–10 published in the FEDERAL REGISTER on March 7, 1975 (40 FR 10802); and Notice 75–23 published in the FEDERAL REGISTER on May 27, 1975 (40 FR 23048). The amendments based on Notice 75–10 were deferred in the series of amendments titled "Miscellaneous Amendments" so that they could be considered in conjunction with the final disposition of certain proposals in Notice 75–23. The discussions of the comments received for the deferred proposals are included under the heading of the related Notice 75–23 proposals.

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all matter presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review within the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and the reasons for their adoption are the same as those contained in Notices 75–10 and 75–23.

Two of the proposals of the original Notice concerning rotorcraft anticollision lights (§§ 27.1401 and 29.1401) have been implemented by separate rule-making action, Amendments 27–10 and 29–11, effective February 5, 1976, that were published in the FEDERAL REGISTER on February 5, 1976 (41 FR 5290). In addition, several proposals which were contained in Notice 75–23 are not being dealt with here but will be considered in conjunction with the proposals contained in Airworthiness Review Program, Notice No. 7: Airframe Proposals (Notice 75–26; 40 FR 24802; June 10, 1975).

DISCUSSION OF COMMENTS

The following discussion is keyed to the like-numbered proposals contained in Notice 75–23.

Proposal 5–1. One commentator objected to the marking (or tagging) requirement in proposed § 23.1301(a)(2), which would require that the marking or tag include identification, function, and operating limitations, on the ground that it would necessitate a multitude of tags on small items of equipment which could interfere with operation of the aircraft or otherwise constitute a hazard. Another commentator contended that the service record does not justify a need for the requirement. Another commentator recommended that this requirement be expanded to require that the marking or tag include information to show that the equipment had been produced under an approved FAA quality control system, or that it had been approved by the FAA for installation on a particular type of aircraft. After further review, the FAA agrees with the first commentator and believes that the proposed marking or tagging requirement should be withdrawn. Accordingly, the requirement in proposed § 23.1301(a)(2) is withdrawn. However, current § 23.1301(a)(2) is amended by deleting the words "if appropriate" for consistency with §§ 25.1301, 27.1301, and 29.1301.

One commentator objected to the requirement in proposed § 23.1301(b) on the ground that it would be extremely difficult, or impossible, in the design of an item of equipment, or of its installation, to provide absolute assurance that it is incapable of interfering with the operation of interfacing equipment under all possible failure conditions. Another commentator stated that the wording of the proposal could be interpreted to mean that fully redundant equipment systems must be installed. The FAA agrees that proposed § 23.1301 (b) would be unnecessarily restrictive, and it is withdrawn. In view of the withdrawal of proposed § 23.1301(b), the paragraphs in § 23.1301, as adopted, have been redesignated.

The proposed revision of the lead-in of current § 23.1301(a) was intended to expand the applicability of that paragraph to cover all optional equipment, consistent with corresponding language in current §§ 25.1301, 27.1301, and 29.1301. One commentator objected because it would require markings on additional items of optional equipment. The FAA believes that the marking of all equipment items contributes significantly to safety by helping to prevent their improper installation and operation, and the lead-in of § 23.1301(a) is revised as proposed.

Proposals 5-21, 5-39, and 5-58 to revise §§ 25.1301(b), 27.1301, and 29.1301, respectively, are withdrawn for the reasons stated herein with respect to proposed § 23.1301.

Proposal 5-2. The deletion of current § 23.1309(a) was proposed because it would have been superfluous if proposed § 23.1301(b) (see Proposal 5-1) had been adopted. Proposed § 23.1301(b) is withdrawn. Consequently, the proposed deletion of current § 23.1309(a) is also withdrawn.

Proposal 5-3. Several commentators questioned proposed §§ 23.1321(a), 25.1321(a), 27,1321(a) and 29.1321(a) (Proposals 5-8, 5-23, 5-42, and 5-56, respectively) concerning the visibility of instruments with a visual indicator for use in flight by any pilot. It was stated that the proposed standard did not adequately provide for instruments that were monitored infrequently during flight as contrasted with instruments more critical to flight safety. With respect to rotorcraft, one commentator also objected on the ground that the space available for mounting instruments was extremely limited. The FAA agrees that priority of instruments and instrument location needs to be more definitive. Therefore, proposed §§ 23.1321(a), 25.1321(a), 27.1321(a) and 29.1321(a) are withdrawn.

Several commentators objected to the phrase "under all cockpit lighting conditions" in proposed §§ 23.1321(e), 25.1321(e) 27.1321(d), and 29.1321(g), contending that it includes everything from lightning to total darkness resulting from complete electrical failure at night. In light of these comments and after further FAA review, proposed §§ 23.1321(e), 25.1321(e), 27.1321(d), and 29.1321(g) are revised to require consideration of all probable cockpit lighting conditions with respect to the visibility of malfunction indicators.

For another comment related to proposed § 23.1321(e), see Proposal 5-23.

Proposal 5-4. One commentator objected to proposed § 23.1323 on the ground that the resulting economic burden to aircraft owners is unwarranted. Another commentator objected to proposed § 27.1323(a) contending that it was unnecessary to calibrate the airspeed indicating instrument. The FAA disagrees with these comments. A requirement for the calibration of the airspeed indicating instrument is necessary to ensure that excessive error is not introduced into the system by the installation of a replacement instrument after the aircraft goes into service. In addition, the FAA believes that although the proposed calibration standards differ from the current standards, they impose little, if any additional burden in showing compliance.

Another commentator (who concurred with the intent of the proposal to revise § 25.1323) questioned whether the allowable error, in proposed § 23.1323(b), should be expressed in terms of calibrated airspace rather than indicated airspeed and whether the airspeed ranges specified in proposed §§ 23.1323(b)(1) and (b)(2) were unnecessarily severe accuracy requirements. The FAA agrees that the error allowed by proposed § 23.1323(b) should be expressed in terms of calibrated airspeed to be in accord with normal practices. However, the FAA believes that the airspeed ranges in proposed §§ 23.1323(b)(1) and (b)(2) are needed to encompass the airspeed limitations in proposed § 23.1545. The FAA also believes that, as a practical matter, the accuracy requirements in proposed § 23.1323 are not significantly more restrictive than the current requirements.

Accordingly, § 23.1323 is revised as proposed, except that the term "indicated airspeed" in paragraph (b) is changed to "calibrated airspeed."

Proposal 5–5. One commentator objected to the proposal to add a new § 23.1325(d), which would be identical to the standard required by § 25.1325(e), on the ground that general aviation airplanes should not be required to conform to transport category airplane standards. A key function of the altimeter system is to enable the pilot to maintain his assigned or required altitude during flight for the purpose of maintaining vertical separation from other aircraft. There is therefore a need for altimeter system accuracy for all aircraft.

Another commentator stated that the proposal would place accuracy requirements on static pressure systems that are more stringent than the requirements proposed for airspeed indicating system in Proposal 5–4. The commentator stated that, under Proposal 5–4, a 5-knot error at 100 knots would be acceptable and this corresponds to an altitude of more than 30 feet which would not be acceptable under proposed § 23.1325(d). The commentator suggested that the proposed altitude error tolerance of ±30 feet (per 100 knots speed) be increased to ±50 feet. The FAA disagrees with the commentator's suggestion. The proposed standard is identical to the standard required for transport category airplanes, which has been administered without difficulty in the past.

Proposal 5–6. One commentator objected to the proposal to amend § 23.1327 on the ground that it would allow an indefinite amount of interference, which would confuse the pilot. The FAA believes that the placard that would be required by proposed § 23.1327(c) would serve to alert the pilot to the fact that certain electrical loads, when switched on, cause excessive deviations of the magnetic nonstabilized direction indicator. The commentator further stated that if an additional magnetic direction indicator (having a deviation less than 10 degrees) is installed, there would no longer be a need for the magnetic nonstabilized direction indicator. The FAA agrees that an additional magnetic nonstabilized direction indicator is not a practical alternative, and proposed § 23.1327 is revised to delete that alternative. However, the FAA believes that the proposed exception is appropriate for those instances in which a magnetic stabilized direction indicator or gyroscopic direction indicator is installed along with a magnetic nonstabilized direction indicator. The commentator also contended that the gyroscopic direction indicator alternative is not a practical solution because it must be reset frequently, thus increasing the pilot's workload. The FAA does not believe that the need to periodically reset the gyroscopic direction indicator adds significantly to the pilot's workload. Finally, this commentator stated that proposed § 23.1327(c) would allow interference that is contrary to current §§ 23.1327(a) and 23.1301(a)(4). With respect to current § 23.1327(a), the FAA believes the comment is valid, and that paragraph is revised for clarification. In view of this change, the requirements in current § 23.1327(a) and proposed § 23.1327(b) are combined into § 23.1327(a), and proposed § 23.1327(c) is redesignated § 23.1327(b). With respect to current § 23.1301(a)(4), the FAA does not believe the comment is valid, since the system consisting of a magnetic nonstabilized direction indicator and either a magnetic stabilized type or a gyroscopic type would meet that requirement.

Another commentator suggested that short term deviations (up to 30 seconds), caused by switching transients should be allowed without placarding the installation. The FAA does not agree. In general, the duration of switching transients is so short that their effect on the magnetic nonstabilized direction indicator is negligible. However, if switching does result in deviations exceeding 10 degrees for substantial intervals, the FAA believes the pilot must be so informed (by placarding) to avoid being misled or confused.

Proposal 5-7. The proposal to amend § 23.1329 is similar to proposals to amend §§ 25.1329 and 29.1329 and to the proposal to add a new § 27.1311 (Proposals 5-24, 5-58, and 5-41, respectively). Other related proposals affecting §§ 25.1329, 27.1329, and 29.1329 were set forth in Airworthiness Review Notice No. 2 (Notice 75-10) as Proposals 2-84, 2-129, and 2-184, respectively, and their disposition was deferred for consideration with Proposals 5-24, 5-41, and 5-58 respectively. The FAA is still reviewing all of these proposals, which concern automatic pilot systems. To avoid delaying the adoption of the amendments contained in Airworthiness Review Program Amendment No. 5, the disposition of these proposals has been deferred until final rule-making action is taken with respect to the proposals contained in Airworthiness Review Program, Notice No. 7; Airframe Proposals (Notice 75-26; 40 FR 24802; June 10, 1975).

Proposals 5-8 and 2-37. For comments related to the proposal to revise § 23.1335, and for an explanation of the revisions to proposed § 23.1335, see Proposal 5-27.

Disposition of Proposal 2-37 to delete § 23.1335 (Notice 75-10 was deferred so that it could be considered in connection with Proposal 5-8. Proposal 2-37 is being withdrawn in view of the adoption, with revisions, of Proposal 5-8.

Proposal 5-9. One commentator suggested that the phrase "not used solely for starting engines" in proposed § 23.1351(f) could be misinterpreted. The explanation in the notice stated that the proposal was intended to prevent damage to the aircraft's electrical system if reverse polarity or reverse phase sequence of the external power source occurred. Therefore, as suggested by the commentator, proposed §§ 23.1351(f), 25.1351(c), 27.1351(e), and 29.1351(d) (designated as § 29.1351(c)) are clarified to require protection if "external power can be electrically connected to equipment other than that used for engine starting."

One commentator objected to proposed §§ 27.1351(e) and 29.1351(d) on the ground that they do not provide a reasonable limit on the extent to which one has to go to ensure that a reverse polarity connection cannot be made. The FAA believes that the proposals are clear and unambiguous as to their intent and as to what is required. The FAA believes that a more detailed requirement would be unnecessarily restrictive.

One commentator objected to proposed § 25.1351(c) on the ground that it does not cover every external power condition that should be protected against, and that its objective is already covered by current regulations on electrical systems and equipment. The purpose of the proposal for protection against those hazardous conditions involving external power that have occurred in service. With respect to the current regulations on electrical systems and equipment, they are not sufficiently specific to adequately deal with the subject matter of these proposals.

Proposal 5-10. No favorable comments were received on the proposed revisions of §§ 23.1353(b)(1), 25.1353(c)(1)(i), 27.1353(b)(1) and 29.1353(c)(1)(i) and those sections are amended as proposed.

Several commentators recommended that proposed §§ 23.1353(g), 25.1353(c)(6), 27.1353(g) and 29.1353(c)(6), be revised to apply to lead-acid batteries in addition to nickel cadmium batteries and to apply to batteries not used for starting as well as those used for starting. The FAA does not agree. There is no history of hazardous effects on structure or essential systems caused by excessive heating of lead-acid batteries. With respect to nickel cadmium batteries, excessive heating has only been associated those batteries that were being used for starting.

One commentator stated that the content of proposed § 23.1353(g) is already covered by the first sentence of § 23.1353(b), which states that "safe cell temperatures and pressures must be maintained during any probable charging and discharging condition". The FAA does not agree. That requirement covers the normal range of battery operating conditions and does not provide for the thermal runaway condition that has occurred in service with nickel cadmium batteries.

Another commentator contended that the temperature generated by a short circuit cannot be foreseen accurately and that it would be more advisable to take measures to prevent such short circuits instead of trying to counter their effects. The FAA believes that the temperature (and heat) generated by a short circuit can be determined with sufficient accuracy for design purposes. In addition, the FAA knows of no practical means that would prevent the internal short circuits of the battery that are caused by thermal runaway.

One commentator objected to proposed § 27.1353(g) because he considered that the proposal could be construed to require protection against damage that would not be hazardous. The FAA does not believe that the proposed language has that connotation. The intent of the term "hazardous effect" is to exclude non-hazardous damage that may occur.

One commentator suggested that warning systems, when provided, that alert the crew to take corrective action should be considered in determining the degree of thermal protection required for the surrounding structure. The FAA does not agree. Thermal protection is needed in case the warning is not observed by the crew, or the warning system itself fails.

Proposed §§ 23.1353(g), 25.1353(c)(6), 27.1353(g) and 29.1353(c)(6) are adopted without substantive change; however, they are designated as §§ 23.1353(f), 25.1353(c)(5), 27.1353(f), and 29.1353(c)(5), respectively.

Proposal 5–11. No unfavorable comments were received on the proposal to revise § 23.1357(b). Accordingly, the proposal is adopted without substantive change.

Proposal 5–12. No unfavorable comments were received on the proposal to amend § 23.1361(b). Accordingly, the proposal is adopted without substantive change.

Proposal 5–13. Several commentators objected to the increase in the anticollision light field of coverage requirement in the proposal to amend § 23.1401 on the ground that a light meeting the proposed requirement would be more expensive. One commentator contended that two anticollision lights would probably be needed to meet the proposed requirement, whereas only one was necessary to meet the current requirement in many instances. The FAA believes that the increased field of coverage can be attained with presently available anticollision lights by simply replacing the lens with another which redistributes the light output. The cost of the modified anticollision light would be about the same as that of those now in use. With regard to the need for two lights, the FAA believes that a single anticollision light tht can be located on an airplane to meet a ±30 degrees coverage requirement without exceeding obstructed-visibility limits will in most instances meet the ±75 degrees coverage requirement without exceeding those limits.

One commentator objected on the ground that increasing anticollision light coverage does not improve safety in the air rescue situation, since normal crash landing techniques call for disabling all electrical power and the hazards associated with reapplying power to the anticollision lights outweight the benefits. The FAA disagrees. The restoration, or continuation, of electrical power is not hazardous in all situations. The commentator further stated that position lights make the airplane visible to the control tower from directly below, and that, with the increased coverage requirements, the obstructed-visibility limits should be increased proportionately. The FAA believes that the intensity of position lights in the 30 to 75 degree range is small compared to the proposed anticollision light standards, and would be ineffective. With regard to the obstructed-visibility limits, the FAA believes that the present limits can still be met with anticollision lights having the increased field of coverage. The commentator also contended that it is likely the proposed increase in anticollision lights field of coverage could preclude compliance with the requirement that the crew's vision be unimpaired. While the FAA believes that an increase in field of coverage requirements for rotorcraft anticollision lights even at reduced intensity levels would adversely affect crew vision because of objectionable multiple reflections in the cockpit from the rotor blades, the FAA does not believes that redistribution of the light emitted by anticollision lights on airplanes to cover ±75 degrees instead ±of 30 degrees would adversely affect the crew's vision.

In response to the proposal to amend § 25.1401, two commentators suggested that any proposal concerning anticollision lights should be discussed with the International Civil Aviation Organization (ICAO). However, the proposals as adopted will provide the same color requirement as the international standard. With regard to field of coverage, which is not an international standard but is set forth in an ICAO acceptable means of compliance, the adopted field of coverage requirement would meet that acceptable means of compliance. The FAA plans to propose a similar change in the ICAO field of coverage acceptable means of compliance.

Accordingly, the proposals to amend §§ 23.1401 and 25.1401 are adopted without substantive change.

Proposal 5-14. For comments related to the proposal to add a new § 23.1438, and for an explanation of revisions made to proposed § 23.1438, see Proposal 5-33.

Proposal 5-15. For comments related to the proposal to add new §§ 23.1447(c) and (d), and for an explanation of the revisions made to proposed §§ 23.1447(c) and (d), see Proposal 5-34.

Proposal 5-16. For comments related to the proposal to add a new § 23.1450, and for an explanation of the revisions made to proposed § 23.1450, see Proposal 5-35.

Proposal 5-17. One commentator suggested that proposed § 23.1461(b)(2) be expanded to require demonstration of satisfactory overspeed and overtemperature margins, establishment of safe fatigue lives, and a fault analysis to show freedom from defects such as burst due to shaft failure and failure due to undetected loss of cooling air. The FAA believes that proposed § 23.1461(b) adequately deals with overspeed and overtemperature conditions and the term "malfunctions" in proposed § 23.1461(b) includes the "defects" mentioned by the commentator. With regard to establishing safe fatigue lives, the FAA does not believe that the need for such a requirement has been demonstrated. For other comments related to this proposal, see Proposal 5-38.

The proposal to add a new § 23.1461 is adopted without substantive change.

Proposal 5-18. The FAA is currently still reviewing the proposals to amend §§ 23.1545, 27.1545, and 29.1545, concerning marking requirements for airspeed indicators. To avoid delaying the adoption of the amendments contained in Airworthiness Review Program Amendment No. 5, the disposition of these proposals has been deferred until final rule-making action is taken with respect to the proposals contained in Airworthiness Review Program, Notice No. 7: Airframe Proposals (Notice 75-26; 40 FR 24802; June 10, 1975).

Proposal 5-19. A commentator recommended that proposed § 23.1547(e) be revised by inserting the words "the operation of" before the words "electrical equipment" to be consistent with the language in Proposal 5-6. The FAA agrees, and proposed § 23.1547(e) is revised accordingly. The commentator further suggested that the placard be required to state "which conditions, or combination of conditions" rather than "which electrical loads, or combination of loads" because deviation is not solely related to electrical loads, and to state the maximum deviation that occurs for those conditions (or combination of conditions) which cause a deviation of more than 10 degrees, so that the pilot is informed of the maximum expected error. The FAA believes that the proposed language covers the sources of excessive deviation that are allowed. With regard to the maximum deviation, the FAA believes that in view of the placarding requirements proposed, a requirement concerning maximum deviation is unnecessary.

Proposals 5-20 and 2-63. Several commentators objected to the provision in proposed § 25.831(e) (Proposal 5-20) that would require a means for independent control of both temperature and quantity of ventilating air in each compartment or area occupied by crewmembers.

In light of the comments received, and after further review, the FAA believes that with respect to crewmember compartments or areas which are ventilated by air interchange with other compartments or areas, a requirement to provide independent control of ventilating air temperature and quantity would impose a burden of complexity and cost not commensurate with its probable contribution to safety. However, with respect to those crewmember compartments and areas which are not ventilated by air interchange with other compartments or areas under all operating conditions, the FAA believes that a means for independent control of ventilating air temperature and quantity must be provided for the occupants to ensure that their ability to perform safety-related functions is not impaired. Proposed § 25.831(e) is revised accordingly.

One commentator recommended that the 800 cubic feet specified in proposed § 25.831(f)(1), and the 5 degrees F. specified in proposed § 25.831(f)(2), be revised to 1100 cubic feet and 10 degrees F., respectively. This commentator contended that a 1100 cubic-foot limit would not affect safety adversely, and that a 10 degree F. temperature differential between flight crew and passenger compartments would not contribute significantly to crew or passenger discomfort. The FAA does not have sufficient information at the present time to justify relaxing the current requirement to the extent recommended by the commentator.

One commentator suggested that the temperature and ventilation controls referred to in proposed § 25.831(f)(3) should be accessible to both pilots. The FAA agrees, and proposed § 25.831(f)(3) is revised to require that the temperature and ventilation controls be accessible to the flight crew.

Disposition of Proposal 2-68 to amend § 25.831 (Notice 75-10) was deferred so that it could be considered in connection with Proposal 5-20. Proposal 2-68 is withdrawn in view of the adoption, with revisions, of Proposal 5-20.

Proposal 5-21. For comments related to proposed § 25.1301(b) and for the withdrawal of proposed § 25.1301(b), see Proposal 5-1.

Proposal 5-22. The proposed changes to §§ 25.1309(a) and (e) with respect to inserting the word "chapter" in place of "subchapter" were also proposed for § 27.1309(a) and §§ 29.1309(a) and (d) (Proposals 5-40 and 5-55, respectively).

Several commentators objected to the proposed change from "subchapter" to "chapter" because it would broaden the scope of the requirement to include equipment, systems, and installations required by the subchapters dealing with various operating rules. One commentator contended that the proposal would require that equipment prescribed in an operating subchapter be designed and installed in each aircraft in order to obtain a type certificate. In the light of these comments, and after further review, the FAA believes that the proposed change of the word "subchapter" to "chapter" in §§ 25.1309(a) and (e), 27.1309(a) and 29.1309(a) and (d) would impose an unreasonable burden on the aircraft manufacturer. Accordingly, this proposed change has not been made.

Two commentators objected to proposed § 25.1309(b)(1) on the ground that the added provision dealing with the loss of all propulsive power is already adequately covered in present § 25.671(d), and that the occurrence of any failure condition which would preclude controlled flight to an emergency landing after loss of all propulsive power would have to be "extremely improbable" and this cannot be achieved. The FAA agees, and proposed § 25.1309(b)(1) is withdrawn.

One commentator objected to proposed § 25.1309(b)(2) on the ground that "operational or performance capability", without qualification, is not a matter for safety regulation. In the light of this comment, and after further consideration, the FAA believes that the phrase "operational or performance capability of the airplane" could be misinterpreted and could cause difficulties in administering the requirement. Therefore, the FAA believes that the language in the current rule should not be changed in this regard. In addition, other commentators noted that the phrase "or the ability of the crew to cope with adverse operating conditions" in current § 25.1309(b)(2) had been omitted from proposed § 25.1309(b)(2) without explanation, and recommended that it be restorted as necessary for safety. The FAA agrees. The phrase was inadvertently omitted from the proposal. Accordingly § 25.1309(b)(2) as adopted retains the language in current § 25.1309(b)(2), except that the phrase "result in injury to the occupants, or" is deleted.

One commentator objected to proposed § 25.1309(d) contending that the method of compliance set forth in paragraph (d), which is applicable to paragraph (b), mandates unreasonably burdensome procedures. The requirements objected to by the commentator are contained in current § 25.1309. The FAA does not believe that requiring compliance with those provisions is unreasonably burdensome. Analyses along the lines prescribed in proposed § 25.1309(d) are being conducted by some manufacturers on a voluntary basis.

One commentator recommended that the term "flight simulator" in proposed § 25.1309(d) be changed to "simulator" to allow the use of simulators other than flight simulators. The FAA agrees, and proposad § 25.1309(d) is revised accordingly.

One commentator objected to proposed §§ 25.1309(e) and (d) because they are less stringent than the present requirements, which call for an analysis, and tests where necessary, showing that systems, controls, and associated monitoring and warning means are designed "so that crew errors that would create additional hazards are improbable". As pointed out in the explanation for Proposal 5-22, the FAA has concluded that requiring a showing of compliance with present § 25.1309(d) is unreasonably burdensome. In particular, the FAA believes that it is not practicable to quantify the probability of crew errors. The FAA believes that the requirement, "* * * to minimize crew errors which would create additional hazards", in proposed § 25.1309(c) would provide an adequate level of safety. Accordingly, proposed § 25.1309(c) is adopted without substantive change and the lead-in of § 25.1309(d) is amended to delete the reference to paragraph (c).

The proposed changes to §§ 25.1309(e) and (f) with respect to the two-engine-inoperative condition on aircraft with three engines are substantively identical to the proposed changes to §§ 29.1309(d) and (e) (Proposal 5-55). One commentator objected to proposed §§ 25.1309(e)(3) and (f), and proposed §§ 29.1309(d)(3) and (e), on the ground that they do not provide adequate guidance as to which loads are required during the proposed two-engine-inoperative condition on aircraft with three engines. This commentator recommended that the term "flight safety loads" be used instead of "essential loads" for that condition. The FAA does not agree. The FAA believes that proposed §§ 25.1309(f) and 29.1309(e) are clear in that the monitoring of power loads is allowed in those circumstances and loads not required in controlled flight need not be considered for the two-engine-inoperative condition on airplanes with three or more engines. One commentator objected to the proposed two-engine-inoperative condition on aircraft with three engines on the ground that it would impose a requirement for an unreasonable amount of power, in that both units of dual systems would be required to operate during that condition. The FAA disagrees. The procedure set forth in proposed §§ 25.1309(f) and 29.1309(e), which would apply to the two-engine-inoperative condition on three-engine aircraft, would allow the monitoring of one unit of a dual system in those circumstances. Another commentator objected to proposed § 29.1309 (d)(3)(ii) contending that the requirement was unreasonable for rotorcraft since they cannot maintain flight with only one third of installed power. The FAA does not agree that the requirement is unreasonable for rotorcraft. The proposal would ensure that at least those power loads necessary for controlled descent to a safe landing are supplied for the two-engine-inoperative condition on a three-engine rotorcraft. Accordingly, proposed §§ 25.1309(e)(3) and (f), § 29.1309(d)(3) and the proposed change to § 29.1309(e) are adopted without substantive change.

Proposal 5-23. For a discussion of the comments related to proposed § 25.1321(a) and the withdrawal of that proposal, see Proposal 5-8.

With regard to proposed § 25.1321(e), one commentator suggested that it be revised to apply only to those instruments required under current §§ 25.1303 and 25.1305. The commentator stated that the special lighting provisions that would be required for optional equipment by proposed § 25.1321(e) could be distracting under certain emergencies and could create unnecessary loads on the available power supply. The FAA does not believe that a distinction in this regard is warranted between required and optional instruments. The FAA believes that if a malfunction indicator has been provided for the crew it should be effective under all probable cockpit lighting conditions.

For other comments related to Proposed § 25.1321(e), see Proposal 5-8.

Proposals 5-24 and 2-84. The disposition of the proposals to amend § 25.1329 has been deferred until final rule-making action is taken with respect to the proposals contained in Airworthiness Review Program, Notice No. 7: Airframe Proposals (Notice 75-26; 40 FR 24802; June 10, 1975). See Proposal 5-7.

Proposals 5-25 anr 2-85. Several commentators objected to the proposed deletion of the words "or adjacent to" in current § 25.1331(a)(1) contending that it would restrict flexibility in design and that an integral power failure warning would not necessarily increase warning reliability. The FAA believes that a power failure warning device incorporated within the instrument itself, as opposed to an external device, is more likely to be noticed by the pilot, and would be less vulnerable to wiring or connector failures that may result in loss of the warning function.

One commentator suggested that proposed § 25.1331(a)(3) should apply only to those instruments that present primary navigation data, since navigation is conducted primarily with reference to such instruments and duplication of warning on secondary navigation instruments does not necessarily improve warning reliability. The FAA believes that the instruments covered by proposed § 25.1331(a) are all "primary" in the sense implied by the commentator.

Several commentators, referring to proposed § 25.1331(a)(3), stated that the additional mechanisms and devices necessary to meet this requirement would complicate the design of the instrument to the extent that its reliability would be degraded. The FAA believes that a properly designed warning system would not significantly reduce instrument reliability. Instruments having such warning systems have performed reliably in service.

Several commentators contended that a practicable design meeting proposed § 25.1331(a)(3) is not within the state of the art and that in some instances a triple system, with comparators to monitor and compare signals, would be required. The FAA's intent to require no more than a single system for failure warning. Compliance could be shown, in general, without comparators. Such systems are in use today and are well within the state of the art.

One commentator suggested that the visual warning system that would be required by proposed § 25.1331(a)(3) would tend to reduce or eliminate the sound safe practice of pilots cross-checking instruments to authenticate the information presented. The FAA disagrees. The FAA does not believe that the proposed rule would affect the pilot's cross-checking procedures. In addition, the FAA believes that the warning system would reveal unsafe conditions more effectively and, in some instances, would warn of unsafe conditions that cross-checking would not detect.

Accordingly, the proposed change to § 25.1331(a)(1) and the proposed new § 25.1331(a)(3) are adopted without substantive change.

Disposition of Proposal 2-85 to revise § 25.1331(a)(2) (Notice 75-10) was deferred so that it could be considered in connection with Proposal 5-25. No unfavorable comments were received on the proposal to revise § 25.1331(a)(2); however, the phrase "provided that instrument operation is maintained" is deleted from proposed § 25.1331(a)(2) since it is superfluous and could be confusing.

Proposal 5-26. One commentator objected to proposed § 25.1333(b), contending that an instrument display essential to the safety of flight should not have to be switched on when needed. Before an instrument can be switched on, the pilot must first recognize the problem, decide what to do, and then act. The result, the commentator stated, is a time delay that cannot be tolerated at certain critical points in flight, such as immediately after takeoff, and immediately before landing, especially during instrument flight conditions. Another commentator stated that crew action should be allowed for the purpose of restoring power supplies, or selecting an alternative information source, or the like, provided that it is not necessary to do so immediately.

In the light of these comments, and after further review, the FAA believes that this proposal may affect safety adversely. Accordingly, proposed § 25.1333(b) is withdrawn. The proposed editorial change to § 25.1333(a) is adopted.

Proposal 5-27. One commentator objected to proposed § 25.1335 on the ground that mode indication other than mode selector switch position would be impractical and too costly a retrofit. The FAA notes that the proposed requirement would apply only to airplanes for which an application for a type certificate is filed after the effective date of this amendment. Consequently, no retrofit is required. The commentator further stated that the probable complexity of the proposed mode indication device could detract from the reliability of the system and that systems already fitted with the proposed mode indicaion device have not proven to be 100 percent foolproof. With regard to the complexity of the mode indication device, the FAA does not believe that systems now fitted with the proposed mode indication device have suffered a significant loss in reliability. In addition, the proposed mode indication device would greatly increase the probability that the current mode of operation is properly indicated to the flight crew.

One commentafor criticized the proposed phrase "independent of the mode selector switch" because it would tend to dictate design. Another commentator objected to the same phrase on the ground that it does not ake into account modern panels which incorporate illuminated mode indications that give positive indication of the selected mode, but are not independent of the mode selector switch since they are incorporated in it. The FAA agrees with these comments. The phrase "independent of the mode selector switch" is deleted from proposed § 25.1335 and another sentence is added thereto reading "Selector switch position is not acceptable as a means of indication."

One commentator objected to proposed § 23.1335 on the ground that some flight director systems are designed so that the position of the mode selector switch is adequate for mode indication. The FAA knows of no flight director system in which the position of the mode selector switch constitutes a reliable indication of the current mode of operation. Service experience has shown that the two do not necessarily agree. This commentator also stated that the proposed requirement is not practical for small airplanes and is not consistent with requirement that apply to other systems on small airplanes. The FAA believes that the hazards associated with incorrect indication of the flight director system's mode of operation warrant the proposed requirement.

Proposal 5-28. For comments related to the proposal to add a new § 25.1351(c), see Proposal 5-9.

Several commentators stated that proposed §§ 25.1351(d) and 29.1351(c) do not conform to the special condition on which they were based, since they would require the aircraft to operate safely for 5 minutes without normal generator or battery power, whereas the special condition allowed the use of battery power. The FAA agrees that proposed §§ 25.1351(d) and 29.1351(c) should be revised for consistency with recently issued special conditions. The proposals are therefore revised by adding, after the word "power" in the first sentence, the parenthetical phrase "(electrical power sources excluding the battery)".

One commentator stated that §§ 25.1351(d) and 29.1351(c) were unreasonable in that they would require compliance at the maximum certificated altitude, with critical type fuel, and after loss of electrical power, which is a combination that has not occurred in service. The FAA believes that this set of conditions could exist in service, and that it must be considered in the interests of safety. One commentator suggested that the phrase "including a wire bundle or junction box fire" in proposed §§ 25.1351(d)(1) and 29.1351(c)(1) be deleted since these are not "single" malfunctions. The FAA does not agree that they should be deleted. The FAA believes that the occurrence of a fire in a wire bundle or in a junction box should be considered in this context as a single event or malfunction, even though it may result in several circuit failures.

One commentator suggested that proposed §§ 25.1351(d) and 29.1351(c) should provide for continued flight after the specified 5 minute interval, The recommended change is beyond the scope of the notice. In addition, the FAA does not have sufficient information at the present time to justify such a requirement.

Another commentator questioned whether engine thrust reduction and descent, or engine(s) flameout, descent, and subsequent engine restart at a reasonable altitude, would meet the requirements of the proposed rule. The FAA believes that proposed § 25.1351(d) provides for the situation described by the commentator as long as the airplane can be operated safely.

One commentator objected to proposed § 29.1351(c), contending that the requirement was unnecessary for rotorcraft and would result in the introduction of electrical systems of unnecessary complexity and increased likelihood of mismanagement. The FAA does not agree. The loss of normal generator power is potentially hazardous in all transport category aircraft and must be considered in electrical system design. As to the effect on electrical system complexity and the probability of mismanagement, the FAA has not observed a significant increase in complexity or cases of mismanagement on aircraft that have already been required to comply under a special condition.

Accordingly, proposed §§ 25.1351(d) and 29.1351(c) (designated as § 29.1351(d) for consistency with § 25.1351) are adopted with the revision discussed herein.

Proposal 5-29. For comments related to proposed §§ 25.1353(c)(1)(i) and 25.1353(c)(6) see Proposal 5-10.

Proposal 5-30. For comments related to the proposal to amend § 25.1401 see Proposal 5-13.

Proposal 5-31. One commentator objected to proposed § 25.1421(a) on the ground that since a megaphone is not required to be designed to withstand the ultimate inertia forces specified in § 25.561(b)(3), the airframe manufacturer cannot guarantee that a megaphone will perform its function after being subjected to those forces. The FAA agrees that the requirement of proposed § 25.1421 that "the megaphone be so protected that it will perform its function after being subjected to the ultimate inertia forces specified in § 25.561(b)(3)" is too restrictive in the absence of appropriate design standards for the megaphone itself. Accordingly, proposed § 25.1421(a) is revised to read, "If a megaphone is installed, a restraining means must be provided that is capable of restraining the megaphone when it is subjected to the ultimate inertia forces specified in § 25.561(b)(3)."

In addition, the FAA notes that current § 25.1561(b) requires that each location, such as a locker compartment, that carries life saving equipment (which includes megaphones) must be marked accordingly. Proposed § 25.1421(b) would add little to that requirement, and could raise questions about the meaning of § 25.1561(b) with respect to other life saving equipment. For these reasons, proposed § 25.1421(b) is withdrawn.

Proposal 5-32. Several commentators objected to proposed § 25.1435(a)(2), contending that pressure and fluid quantity gages are not necessary for all hydraulic systems. Another commentator stated that the proposal specifies a design detail rather than a requirement and would rule out other displays such as digital callouts. After further review, the FAA believes that pressure and fluid quantity gages are not needed for all hydraulic systems covered by proposed § 25.1435(a)(2). Indicating means other than gages, including warning lights, may be adequate for some systems. Accordingly, the lead-in of proposed § 25.1435(a)(2) is revised to require "a means to indicate" instead of a gage, for system pressure and for fluid quantity.

No favorable comments were received concerning proposed § 25.1435(a)(2)(i) and it is adopted without substantive change.

One commentator suggested that the malfunctions referred to in proposed § 25.1435(a)(2)(ii) be limited to those associated with low fluid pressure or level. The FAA does not agree. An indicating means for system pressure and fluid quantity would aid the pilots in detecting malfunctions other than low pressure or low fluid quantity. Proposed § 25.1435(a)(2)(ii) is adopted without substantive change.

One commentator stated that the value of 125 percent in proposed § 25.1435(a)(4) was unrealistic and recommended a value of 133 percent. The FAA disagrees. The 125 percent value is in the current rule and the FAA believes that it is appropriate. Proposed § 25.1435(a)(4)(ii) is adopted without substantive change.

No unfavorable comment was received concerning proposed § 25.1435(a)(7) and it is adopted without substantive change.

One commentator suggested that proposed § 25.1435(a)(8) should be revised to take into account the hazardous effects of system failures due to abnormally high temperatures which may occur under certain fault conditions. The FAA does not have sufficient information at the present time to justify such a requirement. Proposed § 25.1435(a)(8) is adopted without substantive change.

Proposal 5-33. One commentator stated that if the term "components" in proposed §§ 25.1438(a) and (b) included all parts of the system it would not be compatible with other sections of Part 25, which use the term "elements". The FAA intended that the term "components" include all parts of the system. Therefore, in order to be consistent with current § 25.1435, which uses the term "elements", that term is substituted for the term "components" in proposed §§ 25.1438(a) and (b).

Another commentator recommended that the 1.5 factor in proposed § 25.1438(a) be reduced to 1.33 to be consistent with current § 25.365(d), which deals with pressurized cabin loads. The FAA does not agree. The FAA does not believe that the factors specified for pressurized cabin loads are appropriate for pressurization system elements. These elements are move comparable to hydraulic system elements for which a 1.5 factor is prescribed in current § 25.1435(a)(1). Proposed § 25.1438(a) is adopted without substantive change.

One commentator questioned the need to specify a higher burst pressure for pneumatic systems than for pressurization systems, contending that pneumatic systems do not necessarily operate at higher pressure and that some are derived from pressurization systems. The FAA's experience has been that pneumatic systems in airplanes are operated at higher pressures, even when a common pressure source is provided for both pneumatic and pressurization systems.

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One commentator objected to the provision in proposed § 25.1438(b) requiring a burst pressure test of 4.0 times maximum normal operating pressure, contending that the industry has historically designed and tested pneumatic systems to a burst pressure of 3.0 times maximum normal operating pressure and that service experience over millions of flight hours has proven the integrity of those systems. Another commentator pointed out that pneumatic deicer boots in general use today cannot sustain a pressure of 4.0 times the maximum normal operating pressure. The FAA agrees with these comments, and proposed § 25.1438(b) is revised to specify a burst pressure of 3.0 times maximum normal operating pressure.

Two commentators recommended that the 4.0 factor in proposed § 25.1438(b) be reduced selectively in particular circumstances, contending that a lower factor might be acceptable for certain materials, or when adequate fatigue testing has been done or service experience supports it. The FAA believes that this recommendation (insofar as it would be applicable to a 3.0 burst pressure factor) may have merit but has insufficient data at the present time upon which to base such lower factors.

Another commentator suggested that the 1.5 factor in proposed § 25.1438(b) should be increased to monitor the effects of manufacturing techniques. The FAA does not agree. These effects are monitored by means of FAA's quality control requirements, as set forth in Part 21.

One commentator suggested revision of proposed § 25.1438 to allow the use of analysis, or a combination of analysis and test, as an alternative method of compliance to eliminate unnecessary testing. The FAA agrees that there are instances where an analysis, or a combination of analysis and test, may be equivalent to a test under proposed § 25.1438(a) or (b). Accordingly, a new § 25.1438(c) is added to provide this alternative.

Proposal 5-34. One commentator objected to the provision in proposed § 25.1447 (c)(1) which would require that oxygen dispensing units be automatically presented before the cabin pressure altitude exceeds 14,000 feet, contending that long-standing FAA policy has been that the altitude for automatic presentation should be 15,000 feet and service experience over the last 16 years has not shown a need to reduce that altitude. The commentator further stated that the flight crew is given a warning when or before the cabin pressure altitude reaches 10,000 feet and is therefore alerted (in the event of a gradual increase in cabin pressure altitude) to the need for appropriate action either to maintain a safe cabin pressure altitude or manually deploy the dispensing units. Another commentator suggested that the presentation altitude be 14,500 feet, rather than 14,000 feet, to take equipment tolerances into account.

In light of the comments received and after further review, the FAA believes that there is insufficient evidence at the present time to justify a requirement for the automatic presentation of oxygen dispensing units before the cabin pressure altitude exceeds 14,000 feet, and that the widely-used value of 15,000 feet provides an adequate level of safety. Proposed § 25.1447(c)(1) is revised accordingly.

Several commentators disagreed with the provision in proposed § 25.1447(c)(1) that would require that each occupant be provided with a manual means to make the oxygen dispensing unit immediately available, contending that manual back-up for the automatic presentation system should be provided for use by the crew only, to avoid tampering by the passengers. Another commentator stated that the average passenger would not be capable of operating such manual means properly and quickly, and that manual means are not feasible for ceiling or hatrack mounted dispensing units.

The FAA believes that a manual means must be provided to back up the automatic presentation system, but is persuaded that it may not be in the interest of safety to require that a manual means be provided for passengers. Accordingly, proposed § 25.1447(c)(1) is revised to require only that a manual means for the development of the dispensing units be provided for the crew.

No unfavorable comment was received concerning proposed § 25.1447(c)(2) and it is adopted as proposed.

Proposal 5-35. Several commentators recommended that proposed § 25.1450 be revised to require a means to indicate that the generator (or replacement element) has not been used and is capable of providing its rated amount of oxygen. The FAA believes that, in view of current § 25.1441(c), there is no need for this additional requirement.

Several commentators objected to proposed § 25.1450(b)(2)(i) on the ground that a positive flow indicating device located on the generator would provide insufficient safety improvement for the cost involved. After further review, the FAA does not believe that there exists adequate justification for the proposed requirement at the present time and it is withdrawn.

One commentator suggested that the word "installation" be added after the word "generator" in the lead-in of proposed § 25.1450(b) because, as proposed, the surface temperature of the actual generator must be contained by its installation. The FAA sees no need for this revision.

One commentator questioned the desirability of replacing generator elements during flight. The FAA believes that the practical problems of manually replacing and stowing expended generator elements, which reach high temperatures, make it very unlikely that generators requiring manual in-flight replacement of elements would be utilized. Instead, generator elements would be replaced during ground maintenance. For this reason, proposed § 25.1450(c)(2) is withdrawn.

One commentator objected to proposed § 25.1450(c)(1)(ii) contending that the proposal should not require that the generator placard contain the duration of the replacement element since a means to determine flow in the dispensing equipment is provided. The FAA does not agree; it is necessary that the duration of the replacement element be on the placard to reduce the probability that an element of insufficient capacity is inserted when the generator is serviced.

Proposal 5-36. Several commentators objected to proposed §§ 25.1457(b) and 29.1457(b). The FAA believes that the comments received raise valid questions as to whether compliance with proposed §§ 25.1457(b) and 29.1457(b) would necessarily improve cockpit voice recorder intelligibility, and whether requiring multiplexing or separate area microphone recording channels (involving extensive redesign of the cockpit voice recorder) could be justified on a cost-benefit basis. Accordingly, proposed §§ 25.1457(b) and 29.1457(b) are withdrawn.

Several commentators objected to proposed §§ 25.1457(d)(1) and 29.1457(d)(1) because the additional load on the emergency bus would reduce the power available to sustain safe flight in an emergency. The FAA agrees, and proposed §§ 25.1457(d)(1) and 29.1457(d)(1) are withdrawn.

Two commentators objected to proposed §§ 25.1457(e) and 29.1457(e) contending that, although the random storage method may have caused problems in earlier years, the cockpit voice recorder manufacturers have since taken steps to eliminate the problem by improvements in design, and there is therefore no justification for specifying that the tape be stored on reels, which is an unnecessarily restrictive requirement. In light of this comment and after further review by the FAA, §§ 25.1457(e) and 29.1457(e) are withdrawn. In view of the withdrawal of proposed §§ 25.1457(b),(d)(1), and (e) and 29.1457(b),(d)(1), and (e) the related provisions of proposed §§ 121.359(c)(3) and (c)(4) and 127.127(b) are also withdrawn.

Several commentators suggested that the underwater locating device specified in proposed §§ 25.1457(g)(3) and 121.359(c)(2)(iii) was superfluous when the flight recorder (which must have an underwater locating device under current § 121.343(f)) and the cockpit voice recorder are co-located. The FAA agrees that an exception is warranted in this circumstance, provided that the installation of the flight recorder and the cockpit voice recorder is such that they are not likely to be separated during crash impact. Accordingly, proposed § 121.359(c)(2)(iii) is adopted with this exception. No revision to proposed § 25.1457(g)(3) is needed and proposed § 25.1457(g) is adopted without substantive change.

Two commentators objected to proposed § 121.359(c)(2) on the ground that up to 3 years would be needed by the airlines to make the airplane modifications prescribed. The FAA agrees, and the lead-in of proposed § 121.359(c)(2) is revised to allow 3 years (from the effective date of this amendment) for compliance. Proposed § 121.359(c) is adopted with the revisions discussed herein.

Proposal 5-37. Several commentators objected to proposed § 25.1459(a)(4), which would require a means for pre-flight checking of the flight recorder for proper operation. One commentator stated it is not technically within the state-of-the-art to meet this test requirement for foil-recording systems, and that the proposed requirement is unnecessarily restrictive. Another commentator contended that there would be a prohibitive increase in flight-crew and ground-crew workload to conduct the proposed test. In light of these comments, and after further review by the FAA, the FAA believes that proposed § 25.1459(a)(4) would be unnecessarily restrictive. Accordingly, proposed § 25.1459(a)(4) is withdrawn.

No unfavorable comments were received concerning proposed § 25.1459(d) and the proposed deletion of current § 25.1459(a)(7). Accordingly, § 25.1459(a)(7) is deleted and proposed § 25.1459(d) is adopted without substantive change. In addition, since the intent of the proposal was that it only apply to airplanes type certificated in the future, § 121.343(e), which requires compliance with the provisions of § 25.1459, is clarified by revising the first sentence of the lead-in to state that the applicable requirements are those of § 25.1459 in effect one day prior to this amendment.

Proposal 5-38. One commentator objected to proposed § 25.1461, contending that there is no need for it since current §§ 25.1309 and 25.901(c) provide adequate coverage for this item. The FAA does not agree. Sections 25.1309 and 25.901(c) list general requirements, the former for all classes of equipment and the latter for powerplant installations. These general requirements do not contain the detailed airworthiness standards specifically applicable to high energy rotors that the FAA believes are necessary for the reasons stated in the explanation of this proposal.

Another commentator suggested that the proposal be clarified as to whether § 25.1461 (a) requires compliance with either paragraph (b), or (c), or (d). The FAA believes that the proposed language is clear in this respect. The applicant is required to comply with one of those paragraphs, and he may select any one of them.

For another comment related to this proposal, see Proposal 5-17.

The proposal to add a new § 25.1461 is adopted without substantive change.

Proposal 5-39. For comments related to proposed § 27.1301 and for the withdrawal of proposed § 27.301, see Proposal 5-1.

Proposal 5-40. For comments related to the proposal to amend § 27.1309(a), and for the withdrawal of this proposal, see Proposal 5-22.

Proposals 5-41 and 2-129. The disposition of the proposals to add new §§ 27.1311 and 27.1329 has been deferred until final rule-making action is taken with respect to the proposals contained in Airworthiness Review Program, Notice No. 7; Airframe Proposals (Notice 75-26; 40 FR 24802; June 10, 1975). See Proposal 5-7.

Proposal 5-42. For comments related to proposed § 27.1321(a), and the withdrawal of proposed § 27.1321(a), see Proposal 5-3.

For comments related to proposed § 27.1321(d), see Proposals 5-3 and 5-23.

Proposal 5-43. For a comment related to the proposal to add a new § 27.1323(a), see Proposal 5-4. No unfavorable comments were received concerning proposed § 27.1323(b). The proposal to amend § 27.1323 is adopted without substantive change.

Proposals 5-44, 2-35, 2-83, 2-128 and 2-133. Several commentators objected to proposed § 27.1325(b) in Proposal 5-44 on the ground that Part 27 rotorcraft are not normally certificated for flight under IFR or icing conditions. Since static vent icing may occur during both VFR and IFR conditions, the FAA believes there is ample justification for requiring an anti-icing means or an alternate source of static pressure for the certification of all rotorcraft employing a static pressure system for required instruments.

One commentator stated that even if a static pressure system failure occurred, it would not jeopardize safe flight and a safe landing. The FAA disagrees. A static pressure failure would result in the loss of reliable airspeed and altitude information.

Another commentator stated that the implication of proposed § 27.1325(b) in Proposal 5-44, when compared with current § 23.1325(b)(3), is that the reading of the altimeter when on the alternate static pressure system cannot differ from the reading of the altimeter when on the primary static pressure system. The FAA agrees and proposed § 27.1325(b) is revised by adding a sentence identical to the last sentence of current § 23.1325(b)(3) which indicates that error is allowed and requires a correction card for errors greater than 50 feet.

Disposition of Proposals 2-85, 2-88, 2-128 and 2-183 to amend §§ 23.1325, 25.1325, 27.1325 and 29.1325, respectively (Notice 75-10) was deferred so that they could be considered in connection with Proposal 5-44.

One commentator stated that proposed § 23.1325(c), which would provide for more complete duality of static pressure sources, should not be applied to unpressurized aircraft if it is demonstrated that the static pressure system calibration, when each static pressure source is selected, is not changed by the other static pressure source being open or blocked.

The FAA believes this suggestion has merit with respect to the proposed requirement that when a static pressure source is selected the other static pressure source must be blocked off. However, the exception would only be appropriate if it is demonstarted that the static pressure system calibration, when each static pressure source is selected, is not changed by the other static pressure source being open or blocked.

Accordingly, proposed §§ 23.1325(c), 25.1325(g), 27.1325(b), and 29.1325(f) (Proposals 2-85, 2-88, 2-128, and 2-183, respectively) are adopted without substantive change (proposed § 27.1325(b) in Proposal 2-128 and proposed § 29.1325(f) in Proposal 2-183 are redesignated §§ 27.1325(c) and 29.1325(g), respectively, in view of the adoption of Proposals 5-44 and 5-57) and new §§ 23.1325(d), 25.1325(h), 27.1325(d), and 29.1325 (h) contain the exception discussed here.

Proposal 5-45. For comments related to the proposal to amend § 27.1327, and for an explanation of revisions to current § 27.1327(a) and proposed §§ 27.1327(b) and (c), see Proposal 5-6.

Proposal 5-46. For comments related to the proposal to add a new § 27.1335, and for an explanation of the revisions to proposed § 27.1335, see Proposal 5-27.

Proposal 5-47. For comments related to the proposal to add a new § 27.1351(e), see Proposal 5-9.

Proposal 5-48. For comments related to proposed §§ 27.1353(b)(1) and 27.1353(g), see Proposal 5-10.

Proposal 5-49. No unfavorable comments were received on the proposal to amend § 27.1357(b). Accordingly, the proposal is adopted without substantive change.

Proposal 5-50. The proposed amendment of § 27.1401 relating to anticollision light field of coverage, color, and minimum intensity requirements has been adopted, with revisions, in a separate rule-making action (Amdt. 27-10; 41 FR 5290), as noted previously in this preamble.

Proposal 5-51. The disposition of the proposal to amend § 27.1545 has been deferred until final rule-making action is taken with respect to the proposals contained in Airworthiness Review Program, Notice No. 7; Airframe Proposals (Notice 75-26; 40 FR 24802; June 10, 1975). See Proposal 5-18.

Proposal 5-52. For comments related to the proposal to add a new § 27.1547(e), and for an explanation of the revisions to proposed § 27.1547(e), see Proposal 5-19.

Proposal 5-53. For comments related to proposed § 29.1301 and for the withdrawal of proposed § 29.1301, see Proposal 5-1.

Proposal 5-54. One commentator questioned the exception in proposed § 29.1303(g) in that it only applies to those rotorcraft with a third attitude indicating system and does not apply to those rotorcraft that are only required to have one attitude indicating system but have two. The FAA does not have sufficient information at this time to justify extending the proposed exception, as recommended by the commentator.

Another commentator suggested that the 30-minute minimum interval specified in proposed § 29.13030(g)(3) should be changed to "half the endurance of the rotorcraft". The FAA believes the proposed requirement would give the flight crew sufficient time to take corrective action, or land, as the situation may dictate.

Accordingly, § 29.1303(g) is adopted as proposed.

Proposal 5-55. For comments related to the proposal to amend § 29.1309, see Proposal 5-22.

Proposal 5-56. For comments related to proposed § 29.1321(a) and the withdrawal of proposed § 29.1321(a), see Proposal 5-3.

For comments related to proposed § 29.1321(g), see Proposals 5-8 and 5-23.

Proposal 5-57. For comments related to proposed § 29.1325(c), see Proposal 5-44. In light of the comments received and after further review, the FAA believes that there is not sufficient justification to adopt a requirement for Part 29 rotorcraft that is more restrictive than that in proposed § 27.1325(b) for Part 27 rotorcraft. Accordingly, proposed § 29.1325(c), as adopted, is revised to be substantively identical to § 27.1325(b) as adopted.

Proposals 5-58 and 8-184. The disposition of the proposals to amend § 29.1311 has been deferred until final rule-making action is taken with respect to the proposals contained in Airworthiness Review Program, Notice No. 7: Airframe Proposals (Notice 75-26; 40 FR 24802; June 10, 1975). See Proposal 5-7.

Proposal 5-59. For comments related to the proposal to add a new § 29.1335, and for an explanation of the revisions to proposed § 29.1335, see Proposal 5-27.

Proposal 5-60. For comments related to the proposal to add a new § 29.1351(c), see Proposal 5-28. For comments related to the proposal to add a new § 29.1351(d), see Proposal 5-9.

Proposal 5-61. For comments related to proposed §§ 29.1353(c)(1)(i) and 29.1353(c)(6), see Proposal 5-10.

Proposal 5-62. A commentator suggested that it would be more appropriate to cover the content of proposed § 29.1355(b)(1) in § 29.1309 or § 29.1351. The FAA does not agree. Proposed § 29.1355(b)(1) states a requirement concerning distribution systems and distribution systems are the subject matter of current § 29.1355. Accordingly, § 29.1355(b)(1) is adopted without substantive change.

Proposal 5-63. The proposed amendment of § 29.1401 relating to anticollision light field of coverage, color, and minimum intensity requirements has been adopted, with revisions, in a separate rule-making action (Amdt. 29-11; 41 FR 5290, as noted previously in this preamble.

Proposal 5-64. For comments related to the proposal to revise §§ 29.1457(b), (d)(1), and (e), and for the withdrawal of that proposal, see Proposal 5-36.

Proposal 5-65. The disposition of the proposal to amend § 29.1545 has been deferred until final rule-making action is taken with respect to the proposals contained in Airworthiness Review Program, Notice No. 7: Airframe Proposals (Notice 75-26; 40 FR 24802; June 10, 1975). See Proposal 5-18.

Proposal 5-66. For a comment related to the proposed revision of § 91.33(d)(3), see Proposal 5-54.

Section 91.33(d)(3) is adopted as proposed.

Proposal 5-67. One commentator objected to the proposal to amend § 91.36 because he believed it would allow compliance with either current § 91.36(b) or proposed § 91.36(c). The commentator misinterpreted the proposal. The proposal would require compliance with § 91.36(a), (b), and (c).

Another commentator contended that the term "performance standards" in proposed § 91.36(c) would cause confusion and suggested that the word "performance" be deleted. Since the intent of the proposal was to require compliance with all of the minimum standards in the specified TSOs, the FAA agrees with the comment and the word "performance" is deleted in the amendment.

Two commentators suggested revisions to proposed § 91.36(c) that would, in effect, allow the continued operation of currently installed pressure altitude reporting equipment using altimeters and digitizers that do not meet the standards in TSO-C10b and TSO-C88 respectively. The FAA believes that unless these standards are met, there is not assurance that altimeters and digitizers will perform their important probable operating conditions during flight. For this reason, that commentators' suggestion is not adopted. However, after further consideration, the FAA believes that the proposed one-year installation period (after the effective date of the amendment) may not allow enough time to procure and install altimeters and digitizers which comply. Accordingly, the amendment as adopted prescribes a two-year installation period.

One commentator recommended that proposed § 91.36(c) be revised by replacing the term "digitizers" with the term "automatic pressure altitude digitizer equipment" (which is the complete term used in current TSO-C88) because the use of the term "digitizers" would allow approval of equipment that did not meet the standards in TSO-C88. The FAA does not believe that the recommended revision is necessary. It is clear that the equipment referred to must meet the standards in TSO-C88.

The proposal to amend § 91.36 is adopted with the revisions discussed herein.

Proposal 5-68. After further consideration of the proposal to amend § 121.337, and in light of the comments received, the FAA believes that the issues involved warrant further study. Accordingly, the proposal to amend § 121.337 is withdrawn.

Proposal 5-69. Several commentators objected to proposed § 121.343(a). The objections included the following:

- Each new airplane design is sufficiently different to preclude identifying identical components, and system status, that would have the same effect upon controlled flight.
- Flight recorders meeting the current requirements are providing the answers for accident investigation. There is no hard evidence that additional parameters are needed.
- The proposed additional parameters represent a growth of over 100 percent in existing flight recorder systems, with a corresponding growth in system complexity. The result would be a sharp decrease in the reliability of not only the flight recorder but also of the equipment monitored, much of it essential to safe flight.
- The proposed additional parameters would require the installation of systems and components of major cost whose sole purpose is to aid accident investigation. One commentator estimated that the modification program would cost the airline industry $35 million, including airplane out-of-service costs. There would also be greatly increased maintenance costs because of the increased complexity of the system.
- The proposed additional parameters have not been justified on a cost-benefit basis, and no rationale has been given to justify the selection of the proposed parameters from all of the parameters that could be recorded.
- Although some of the proposed additional parameters may enhance the recording system, the implementation of even these would take at least three years.
- The proposal does not provide ranges, accuracies, or recording intervals for the additional parameters.

In the light of these comments, and after further review, the FAA believes that the need for the proposed additional flight recorder parameters has not been justified. Moreover, the FAA now believes that standards setting forth acceptable ranges, accuracies, and recording intervals, for such additional parameters should be developed concurrently with the requirement that they be provided.

Accordingly, proposed § 121.343(a) is withdrawn.

Proposal 5-70. For comments related to the proposal to revise § 121.359(c) and for an explanation of the revisions to proposed § 121.359(c), see Proposal 5-36.

Proposal 5-71. For comments related to the proposal to revise § 127.127(b) and for the withdrawal of that proposal, see Proposal 5-36.

DRAFTING INFORMATION

The principal authors of this document are Irving Fagin, Flight Standards Service, and James M. Barron and Keith S. May, Office of the Chief Counsel.

ADOPTION OF THE AMENDMENTS

Accordingly, Parts 23, 25, 27, 29, 91, and 121 of the Federal Aviation Regulations (14 CFR Parts 23, 25, 27, 29, 91, and 121) are amended as follows, effective September 1, 1977.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and the sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE.—The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91–142

Altitude Alerting System—Required Aural Warning

Adopted: August 12, 1977 **Effective: September 21, 1977**

(Published in 42 FR 42187, August 22, 1977)

SUMMARY: This amendment gives an operator the option of using an alerting system which emits both aural and visual signals upon approaching a pre-selected altitude in ascent or descent, or a system which instead provides only a sequence of visual signals when approaching a pre-selected altitude and provides the aural warning only when a deviation from a pre-selected altitude occurs. This regulatory action was initiated in response to a petition filed with the FAA on behalf of certain interested persons.

FOR FURTHER INFORMATION CONTACT:

Mr. Raymond E. Ramakis, Regulatory Projects Branch, Safety Regulations Division, Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION: Interested persons have been afforded an opportunity to participate in the making of these regulations by a Notice of Proposed Rule Making (Notice No. 76-15) issued June 30, 1976, and published in the Federal Register on July 12, 1976 (41 FR 28535). Due consideration has been given to all comments received in response to the Notice.

The FAA issued Notice No. 76-15 in response to a petition received from the Air Transport Association (ATA). In the Notice the FAA stated that it believes the present aural signal requirement should be amended substantially as proposed by the ATA petition. As explained in the Notice, the aural signal currently required by the regulations now sounds during the altitude acquisition phase of flight for each preselected setting of the altitude alerter. This requirement, combined with the numerous clearances for change of flight altitudes associated with turbojet operations, causes the flight crew to be exposed to the arural signal to the extent that their reaction to the signal may become conditioned indifference. As stated in the Notice the FAA believes an amendment to the current regulation which will allow an operator to use an alerting system that given an aural warning only when a deviation from a preselected altitude occurs will make the alerting signal more effective.

Most of the 26 public comments received in response to the Notice were generally favorable to adoption of the proposed amendment. Comments from those opposed to the proposal generally expressed concern that the alternative alerting system it would allow to be used may allow altitude overruns to occur and resut in possible high "g" maneuvers being used to return to the selected altitude. Concern was also expressed that the operation of turbojet-powered aircraft at high rates of ascent and descent in the low altitude airway structure, where 1,000 feet separation is employed, may be hazardous if only a visual warning is used. The FAA does not agree that the proposed alternative alerting system will create a safety hazard as suggested in these comments. They will be approved by the FAA only if they are developed in accordance with criteria similar to that currently specified in AC 91-22A and the FAA is satisfied that they provide flight crewmembers with an appropriate and effective alert. It should also be pointed out that installation of the system allowed under the proposal is optional and those operators who do not favor its use may elect to continue using the altitude alerting system as currently provided for under § 91.51.

In addition to the amendment proposed in Notice No. 76-15, the FAA considers it appropriate to amend the flush paragraph following § 91.51(b)(5) to make it clear that for operations below 3,000 feet above ground level (AGL) a radio altimeter may be used that provides only one signal, either visual or aural, if the operator has an approved procedure for the use of the radio altimeter to determine decision height (DH) or minimum descent altitude (MDA), as appropriate. Also for purposes of clarification, the abbreviation "AGL" and its meaning is added to Part 1 of the Federal Aviation Regulations by this amendment.

Since the amendments to the flush paragraph and Part 1 are clarifying in nature and impose no additional burden on any person, the Administrator finds that notice and public procedure thereon are unnecessary.

REGULATORY EVALUATION

In accordance with the Department of Transportation regulatory reform policy, an evaluation of the anticipated impacts of this amendment has been made. It has been determined that it is probable that only minor maintenance and capital investment costs will be incurred as a result of this amendment. In any event, any costs incurred will be more than offset by the enhancement of safety which is expected to result from the amendment. Accordingly, it has been determined that this amendment is expected to be neither costly nor controversial and will not impose a significant burden on the private sector, on consumers, or on the Federal, state, or local governments.

PRINCIPAL AUTHORS

The principal authors of this document are William T. Brennan, Air Carrier Regulations Branch, Flight Standards Service, and Robert G. Leary, Office of the Chief Counsel.

Accordingly, Parts 1 and 91 of the Federal Aviation Regulations are amended and revised, effective September 21, 1977.

(Secs. 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, and 1423); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91-143

Aircraft Lease Agreements

Adopted: October 21, 1977 Effective: November 30, 1977

(Published in 42 FR 57447, November 3, 1977)

SUMMARY: This amendment to the Federal Aviation Regulations requires the lessee or conditional buyer, or registered owner if the lessee is not a citizen of the United States, of a United States registered large civil aircraft to notify the FAA prior to the first flight of the aircraft under the lease or contract. This change requires 48 hours advance notification, unless otherwise authorized by the Administrator which will enable the FAA to conduct the surveillance or inspections considered appropriate. This rule is necessary so that the FAA will be able to have adequate preflight surveillance of lease and contract operations.

FOR FURTHER INFORMATION CONTACT:

Mr. Raymond E. Ramakis, Regulatory Projects Branch, Safety Regulations Division, Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION: Interested persons have been afforded an opportunity to participate in the making of these regulations by a Notice of Proposed Rule Making (Notice No. 76-10) issued March 26, 1976, and published in the Federal Register on April 8, 1976 (41 FR 14897). Due consideration has been given to all comments received in response to the Notice.

A total of twenty-six comments were received in response to the Notice. Most of the comments received were opposed to the proposal. Some comments suggested minor changes to the requirements in § 91.54 with respect to place of filing of the lease and other considerations. Those recommendations are considered by the FAA to be beyond the scope of Notice No. 76-10. Aircraft leasing companies opposed the proposed rule since they believe that current §91.54 gives the FAA adequate control of leasing operations of large aircraft.

Several commentators stated that the FAA should place emphasis on the inspection of a lessor's maintenance facility and procedures rather than on an individual aircraft immediately before its first flight under the lease. The FAA continues to maintain its long-established facility inspection program but does not believe that the inspection program provides the lessee or conditional buyer with sufficient protection in the determination of responsibility for operational control, maintenance and inspection of the aircraft during the 12 months preceding the execution of the lease or contract of conditional sale, and the status of compliance of the aircraft with applicable maintenance and inspection requirements.

The majority of the aircraft leasing companies providing unfavorable comments on Notice No. 76-10 stated that the proposed regulation would jeopardize short notice leasing operations and could, therefore, cause the lessor to suffer loss of business. Although comments were received expressing a concern that the 48-hour prior notification would jeopardize short notice leasing operations, the FAA believes that notification within 48 hours is necessary to insure that the appropriate FAA Flight Standards District Office, General Aviation District Office, Air Carrier District Office or International Field Office is able to conduct the surveillance or inspections considered appropriate. The FAA recognizes that in certain cases notification 48 hours prior to takeoff might cause a hardship. Therefore, the amendment allows the Administrator to authorize receipt of the notification in less than 48 hours. The FAA believes that the regulation adopted herein, uniformly applied, will cause persons leasing aircraft, as well as those buying or leasing newly manufactured aircraft, to adjust to the 48-hour notice of requirement. The FAA is revising Advisory Circular 91-37, entitled "Truth in Leasing", to set forth the procedures for use in the notification required under this amendment.

One commentator stated that a Notice provision would prohibit the last-minute substitution of aircraft. The FAA believes that, if the lessor has enough aircraft available with a substitute aircraft in the event of malfunction, then a provision explaining the substitution can be written into the lease agreement and the substitute aircraft identified as provided in §91.54.

Furthermore, the FAA does not believe that the 48-hour prior notification requirement will unduly inhibit interchange or time-sharing programs as the nature of these agreements implies a continuing arrangement rather than a short notice arrangement.

As was stated in Notice No. 76-10, the FAA believes that the current requirement that a copy of the lease or contract be mailed to the Flight Standards Technical Division, Oklahoma City, Oklahoma, within 24 hours of its execution has not provided the level of safety intended by the rule. Since in many cases the copy of the agreement arrives in Oklahoma City after the flight, or flights, are completed, adequate preflight surveillance of the operation by the FAA is not possible.

Accordingly, to correct this deficiency and to provide for timely surveillance of lease operations, §91.54 is amended to require the lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the United States, to notify by telephone or in person, the FAA Flight Standards District Office (FSDO), General Aviation District Office (GADO), Air Carrier District Office (ACDO), or International Field Office (IFO), nearest the airport where the flight will originate. Unless authorized by the Administrator, the notification shall be given at least 48 hours prior to takeoff in the case of the first flight of that aircraft under that lease or contract and inform the FAA of: the location of the airport of departure; the departure time; and the registration number of the aircraft involved.

This amendment will provide for sufficient advance notice of the first flight of leased aircraft to facilitate any surveillance and preflight inspections that may be considered appropriate in determining compliance with applicable Federal Aviation Regulations.

The costs to consumers and other agencies have been determined to be insignificant, while benefits are derived from the elimination or reduction of leased aircraft operations which ignore or circumvent the intent of the safety regulations. Certain costs may result to aircraft lessors and operators if delays produce unscheduled aircraft or crew "down time" due to the requirement of notification at least 48 hours prior to takeoff.

The places where notification to the FAA can be made have been expanded in the regulation, as adopted, to include any FAA International Field Office in order to provide for appropriate notification for leases that involve the delivery of aircraft at locations outside of the United States. Requirements for mailing a copy of the lease and other relevant information to the FAA that are included in §91.54 remain the same.

DRAFTING INFORMATION

The principal authors of this document are W. T. Brennan, Air Carrier Regulations Branch, Flight Standards Service, and Edward Faberman, Office of the Chief Counsel.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective November 30, 1977, by amending §91.54 by striking out the word "and" at the end of paragraph (c)(1), by striking out the period at the end of paragraph (c)(2) and adding a semicolon and the word "and" at the end thereof, and by adding a new paragraph (c)(3).

(Secs. 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c).)

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91-144

Minimum Navigation Performance Capability for Operations Over the North Atlantic

Adopted: December 27, 1977 **Effective: December 29, 1977**

(Published in 42 FR 64880, December 29, 1977)

SUMMARY: This amendment requires that aircraft operated in certain airspace over the North Atlantic meet a specified level of navigation performance capability. The intended effect is to ensure that an adequate level of safety will be maintained when lateral traffic separation standards are reduced in the affected airspace in 1978. These changes are necessary in order to include in the Federal Aviation Regulations navigation performance standards adopted by the International Civil Aviation Organization.

FOR FURTHER INFORMATION CONTACT:

Mr. Raymond E. Ramakis, Regulatory Projects Branch, Safety Regulations Division, Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

BACKGROUND

Pursuant to action by the Council of the International Civil Aviation Organization (ICAO), effective December 29, 1977, the following described airspace over the North Atlantic (NAT) will be designated as Minimum Navigation Performance Specifications (MNPS) airspace: that volume of airspace between flight level 275 and flight level 400 extending between latitude 27 degrees north and latitude 67 degrees north, bounded in the east by the eastern boundaries of flight information regions Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik, and in the west by longitude 60 degrees west within flight information region New York Oceanic, the western boundary of flight information region Gander Oceanic, and the western boundary of flight information region Reykjavik. Purusant to the ICAO action, the following navigation performance capability standards will apply to aircraft operating in the NAT MNPS airspace:

1. The standard deviation of lateral track errors shall be less than 6.3 NM (11.7 Km). By way of explanation, a standard deviation is a statistical measure of dispersion of data about a mean value. The mean is assumed to be zero. Under the MNPS concept, aircraft will be within 6.3 NM (11.7 Km) of cleared track 68 percent of the time of flight and within 12.6 NM (23.4 Km) of cleared track 95 percent of the time of flight.

2. The proportion of the total flight time spent by aircraft 30 NM (55.6 Km) or more off the cleared track shall be less than 5.3×10^{-4} (i.e., less than one hour in 1,887 flight hours).

3. The proportion of the total flight time spent by aircraft between 50 NM and 70 NM (92.6 Km and 129.6 Km) off the cleared track shall be less than 13×10^{-5} (i.e., less than one hour in 7,693 flight hours).

The NAT MNPS airspace is one of the most heavily used oceanic airspace areas in the world because of the large number of flights traveling between North America and Europe. The MNPS concept was developed by ICAO in order to permit more efficient use of the NAT MNPS airspace. This will be accomplished by reduction of the lateral traffic separation standard from the present 120 miles to 60 miles. It is anticipated that significant fuel savings will be achieved because the effect of the reduction in traffic separation will be to permit more flights to operate over the optimum tracks between North America and Europe. Thus, there are significant public interest benefits which are expected to result from implementation of the MNPS concept.

The traffic separation distance reduction is scheduled to take effect on October 5, 1978. However, pursuant to the ICAO action, the MNPS concept, including designation of airspace and implementation of MNPS navigational performance capability, will become effective December 29, 1977, in order to permit a thorough operational evaluation. This evaluation will ensure that safety will not be adversely affected when the planned reduction in traffic separation distance becomes effective.

Pursuant to the MNPS concept adopted by ICAO, each ICAO Contracting State is required to vertify that aircraft registered in that state, which are intended to be operated in the NAT MNPS airspace, possess the navigational capability required to meet the MNPS standards. In addition, ICAO Contracting States which are responsible for providing air traffic control services in the NAT MNPS airspace, i.e., the United States, Canada, Denmark, Iceland, Portugal, and the United Kingdom, are required to monitor navigational performance in the NAT MNPS airspace in order to ascertain whether the required degree of navigational accuracy is achieved by persons operating aircraft in that airspace.

DESCRIPTION OF THE AMENDMENT

This amendment provides that no person may operate a civil aircraft of United States registry in the NAT MNPS airspace unless that aircraft has approved navigation performance capability meeting the standards adopted by ICAO. The rule provides that air traffic control (ATC) may permit deviations from the rule if ATC determines that a particular flight can be provided appropriate separation without MNPS navigational performance capability and that the flight will not interfere with, or impose a burden upon, the operations of other aircraft possessing MNPS navigational performance capability.

ADVISORY MATERIAL AVAILABLE

The FAA has developed advisory material which should prove helpful to operators in demonstrating that their aircraft have the navigation performance capability required for operations in the NAT MNPS airspace and obtaining the FAA's approval of that capability. This material may be obtained free of charge by request directed to the U.S. Department of Transportation, Publication Section, TAD 443.1, Washington, D.C. 20590. Operators certificated under Part 121 or 123 or operating large aircraft under § 135.2 of the Federal Aviation Regulations, should request Advisory Circular No. 120-33 Air taxi operators of small aircraft under Part 135, or operators conducting operations under Part 91 of the Federal Aviation Regulations, should request Advisory Circular No. 91-49.

PRINCIPAL AUTHORS

The principal authors of this document are James I. Riddle, Flight Standards Service, and Richard C. Beitel, Office of the Chief Counsel.

NEED FOR IMMEDIATE ADOPTION

Details required for implementation of the MNPS concept were discussed in the meeting of the ICAO North Atlantic Systems Planning Group, held in Paris, France during September 1977. ICAO prepared a summary of that meeting which was distributed to Contracting States commencing October 4, 1977. In accordance with conclusions reached at that meeting, the United States issued a Notice to Airmen (NOTAM) on November 8, 1977, advising that the requirement for compliance with MNPS standards would become effective December 29, 1977, in the NAT MNPS airspace. Other States providing air traffic control services in that airspace, including the United Kingdom on November 1, 1977, issued similar NOTAM's. Since, pursuant to the action of the Council of ICAO, the United States of America and other ICAO Contracting States have agreed to implement the navigational performance capability standards for the NAT MNPS airspace effective December 29, 1977, and in view of the representations which have been made by Contracting States concerning that effective date, I find that notice and public procedure hereon are impracticable and contrary to the public interest and that good cause exists for making this amendment effective in less than thirty days. However, interested persons are invited to submit such comments as they may desire regarding this amendment. Communications should identify the docket number and be submitted in duplicate to the Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket, AGC-24, 800 Independence Avenue, SW., Washington, D.C. 20591. All communications received on or before March 1, 1978, will be considered by the Administrator for discussion with the International Civil Aviation Organization. All comments received will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons.

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91 is amended, effective December 29, 1977.

(Secs. 307, 313(a), 601, 604, and 1102 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354(a), 1421, 1424, and 1502); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE: The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91-145

Airworthiness Review Program

Amendment No. 6: Flight Amendments

Adopted: January 9, 1978 **Effective: March 1, 1978**

(Published in 43 FR 2302, January 16, 1978)

SUMMARY: The purpose of these amendments to the Federal Aviation Regulations is to update and improve—(1) the airworthiness standards applicable to aircraft performance, flight characteristics, flight manuals, and operating limitations; (2) the operating rules containing related airworthiness standards; and (3) the rules governing holders of type certificates. These amendments are part of the Airworthiness Review Program.

FOR FURTHER INFORMATION CONTACT:

Adolfo O. Astorga, Airworthiness Review Branch (AFS-910), Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone (202) 755-8714.

SUPPLEMENTARY INFORMATION: These amendments are the sixth in a series of amendments to be issued as part of the Airworthiness Review Program. The following series of amendments have previously been issued as part of this Airworthiness Review Program:

Title	*FR citation*
Form number and clarifying revisions.	(40 FR 2576; Jan. 14, 1975).
Rotorcraft anticollision light standards.	(41 FR 5290; Feb. 5, 1976).
Miscellaneous amendments.	(41 FR 55454; Dec. 20, 1976).
Powerplant amendments.	(42 FR 15034; March 17, 1977).
Equipment and systems amendments.	(42 FR 36960; July 18, 1977).

These amendments are based on two Notices of Proposed Rule Making—Notice 75-10 published in the FEDERAL REGISTER on March 7, 1975 (40 FR 10802); and Notice 75-25 published in the FEDERAL REGISTER on June 9, 1975 (40 FR 24664). The amendments based on Notice 75-10 were deferred in the series of amendments titled "Miscellaneous Amendments" so that they could be considered with the final disposition of certain proposals in Notice 75-25. The discussions of the comments received for the deferred proposals are included under the heading of the related Notice 75-25 proposals.

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review within the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and the reasons for them are the same as those contained in Notices 75-10 and 75-25.

DISCUSSION OF COMMENTS

The following discussion is keyed to the like-numbered proposals contained in Notice 75-25.

Proposal 6-1. No unfavorable comments were received on the proposal to amend § 1.1 by deleting the term "Accelerate-stop distance" and its definition. Accordingly, the proposal is adopted without substantive change.

Proposal 6-2. For a comment related to the proposal to amend § 1.2, see Proposal 6-34.

Proposal 6-3. One commentator suggested that proposed new § 21.5 concerning Airplane and Rotorcraft Flight Manuals be revised to make clear that other titles for the required Flight Manual, such as Pilot's Operating Handbook, will continue to be approved. The FAA has no objection to the use of the term Pilot's Operating Handbook as the main title. However, if an applicant chooses to use the title Pilot's Operating Handbook, he must include a statement on the title page indicating that the document is the FAA-required Airplane or Rotorcraft Flight Manual.

The same commentator pointed out that on airplanes of types for which Flight Manuals were not furnished in the past, much of the required information was furnished on placards and markings, and that, if this proposal is adopted, some of the placards would no longer be needed but would still be part of the airplane's certification basis. The FAA agrees that some placards may not be necessary after the information is furnished in a Flight Manual. However, application may be made to change the type design if the applicable regulations only require that the material be in either a Flight Manual or in any combination of approved manual materials, markings, and placards.

The same commentator also stated that proposed § 21.5(b) would penalize airplanes that were designed and tested to temperatures higher than the hot day condition prescribed in § 23.1043(b)(1). The FAA does not agree because the temperature for which cooling was demonstrated would be furnished in the Flight Manual as information, not as a limitation. It should be noted that, in response to Proposal 6–29, this commentator stated that there is no objection to furnishing the test temperature if it is not a limitation.

Two commentators stated that it should be made clear that, for rotorcraft originally certificated with a flight manual, the manual originally approved need not be revised to include the new requirements of this proposal. The FAA does not believe a revision is necessary since proposed § 21.5(b), in conjunction with proposed § 21.5(a), refers only to airplanes or rotorcraft that were not type certificated with an Airplane or Rotorcraft Flight Manual.

Another commentator said that requiring Flight Manuals to be furnished for aircraft previously type certificated without a Flight Manual places too large a burden on the holders of these type certificates. The FAA does not agree since the information to be included in the Flight Manual has already been furnished in other forms. In addition, a Flight Manual would provide the operator with essential information in a consolidated, organized form suitable for study and reference. The FAA believes that these benefits outweigh the burden of preparing and printing the Manual.

One commentator, who concurred with the proposal, recommended that the turbulent air penetration speed, least angle of glide speed, and least rate of descent speed (power off) be added to the required information. These are specific requirements which are not applicable to all categories of aircraft and the FAA does not believe they should be included in the rule.

The phrase "maximum anticipated air temperature" in proposed § 21.5(b)(2) is deleted and the phrase "maximum ambient atmospheric temperature" is inserted in its place to be consistent with Proposal 6–20 to amend § 23.1043 and the corresponding proposals for the other certification parts, which are being adopted in this series of amendments.

The proposal to add a new § 21.5 is adopted with the revision discussed above.

Proposal 6–4. For comments related to the proposal to amend § 23.25(b), see Proposal 6–5. The proposal to amend § 23.25(b) is adopted without substantive change.

Proposal 6–5. One commentator objected to the proposal to amend § 23.29, which would require the empty weight to be determined with "full" operating fluids, on the ground that this procedure would eliminate the option of "off loading" oil in order to maintain weight and center of gravity limits. The FAA does not agree. This option would not be eliminated by proposed § 23.29 since it merely establishes a new reference basis for empty weight. The same commentator stated that since this proposed rule is not retroactive, confusion will result because some aircraft will have oil included in the weight and balance and others will not. This commentator also suggested that the use of the same definition of empty weight by the FAA and the military would eliminate the difficulties encountered by pilots operating both military and civil aircraft. The FAA does not believe that the proposed change will cause confusion or difficulty in either situation cited by the commentator since the weight and balance data accompanying each airplane will specify whether oil is included in the empty weight. Further, this procedure should simplify weight and balance computations since fluids normally included will be accounted for without further additions to the empty weight.

One commentator objected to the proposals to amend §§ 27.29 and 29.29 on the ground that there is no benefit to be gained by changing the definition of empty weight. The FAA does not agree with this comment for the reasons stated in the Notice for these proposals. This commentator further objected to the proposal to amend § 27.29 on the ground that it would create a problem for helicopters that have a larger oil tank capacity than is required under all conditions, such as helicopters designed to accept auxiliary fuel tanks. The option of off-loading oil would not be eliminated by proposed § 27.29. In addition, the FAA believes that the change will accomplish its purpose of simplifying weight and balance computations for the great majority of helicopters.

Several commentators on the proposal to amend § 25.29 noted that the proposed rule would require certain fluids which, in transport category airplanes, are variable as a function of individual operator or mission requirements and of passenger seating density (such as potable water and lavatory pre-charge fluids) to be included in the empty weight. It was suggested that an exception be provided for those fluids that vary with operation or mission as well as those that are expendable in flight such as water intended for injection in the engines. The FAA believes that exceptions for the specific fluids noted are warranted for airplanes, but the FAA does not believe that an exception is appropriate for potable water or lavatory pre-charge water for rotorcraft. The proposals to amend §§ 23.29 and 25.29 are revised accordingly.

Proposal 6–6. A commentator objected to the proposed change to § 23.45, stating that a requirement to correct the performance to 80 percent relative humidity is not necessary, that it would increase the cost and complexity of certification without any increase in safety, and that it will create a new standard atmosphere that will result in confusion as to the basis for engine performance data. The power loss that is associated with changing from dry air to air at 80 percent relative humidity would cause a significant reduction in the climb performance of a reciprocating-engine powered airplane and should be considered. This reduction would be most evident where performance is marginal, e.g., during one-engine-inoperative climb. With regard to turbine engines, the FAA believes that the effect of humidity may be negligible on some types of engines, in which case no performance correction would be necessary. However, for some other types of turbine engines, a correction for humidity will increase the accuracy of the performance data. The FAA believes that the data required for making the corrections can be obtained simply and with inexpensive instrumentation. Further, the FAA does not believe that requiring a correction for humidity in the performance data for newly type-certificated airplanes will result in confusion. A transition period may exist during which the performance data for newly type-certificated airplanes will be corrected for humidity and that for other airplanes may not be. Such transition periods inevitably occur with the adoption of new regulatory provisions and the FAA does not believe that the transition in this case will present a significant problem.

The commentator further stated that present performance measurement accuracy is within the range of uncontrolled airplane-to-airplane variations, atmospheric variations other than humidity, and piloting variations, and that eliminating one variable whose effect is within the spread of other variables is not justifiable on a simple cost-benefit analysis. The FAA does not agree that the humidity correction should be omitted on the basis of conjecture that other variables may mask its effect. Certification flight testing is not allowed when atmospheric variables would affect data accuracy, and tests must be repeated as necessary to establish confidence in data accuracy.

In regard to the burden of correcting for humidity in type certification, the FAA believes that it should in many cases be possible to show that the effect of humidity is not significant or that it is covered by a conservative correction factor. Correction of performance data to standard atmospheric conditions of temperature and pressure is required in any case, and an additional correction for humidity should be a relatively small burden.

The proposal for § 23.45 is adopted without substantive change.

Proposal 6–7. No unfavorable comments were received on the proposal to amend § 23.49. Accordingly, the proposal is adopted without substantive change.

Proposal 6–8. One commentator suggested that, for consistency with certain foreign requirements, proposed §§ 23.51(c)(1)(ii) and (c)(2)(i) should be revised to read 1.2 V_{S_1}, instead of 1.3 V_{S_1}. The FAA does not believe that the recommended change is necessary. Proposed §§ 23.51(c)(1)(ii) and (c)(2)(i) already provide for a speed less than 1.3 V_{S_1}.

The first commentator also stated that proposed § 23.51(c)(1)(ii) should be revised so that it refers to the complete failure of a single engine (on multi-engine airplanes) instead of complete engine failure which would introduce a double failure concept not inherent in these rules. The FAA does not agree. Proposed § 23.51(c)(1)(ii), which is consistent with current § 23.51(a)(2)(ii) in this regard, only requires that "complete engine failure" be investigated if a speed of less than 1.3 V_{S_1} is demonstrated at a height of 50 feet. In addition, current § 23.51(a)(2)(ii) has been consistently interpreted to require that for multi-engine airplanes which meet the powerplant isolation requirements of § 23.903(c) in the takeoff configuration, only one engine need be made inoperative in the specified investigations.

One commentator objected to the extension of takeoff performance determination requirements to airplanes of 6,000 pounds and less maximum weight, for reasons stated in his comments on Proposal 6-3 concerning Flight Manuals. For a discussion of these comments, see Proposal 6-3.

Another commentator recommended that those provisions of the existing rule which relate to nosewheel and tailwheel liftoff speeds be retained and that their applicability be extended to all airplanes. These provisions were originally imposed in lieu of a requirement for approved takeoff performance data for airplanes of 6,000 pounds and less maximum weight. In view of the requirements which are being adopted, and in view of satisfactory service history for airplanes of more than 6,000 pounds maximum weight, the FAA does not believe these provisions should be retained or that their applicability should be extended to all airplanes.

The proposal to revise § 23.51 is adopted without substantive change.

Proposal 6-9. One commentator objected to the application of proposed § 23.65, concerning all-engines operating climb requirements, to airplanes of 6,000 pounds or less maximum weight for reasons stated in his comments on Proposal 6-3 concerning Flight Manuals. For a discussion of these comments, see Proposal 6-3.

Another commentator stated that use of a reduced propeller pitch under proposed § 23.65(b) is not consistent with safety requirements, because it would either deny the pilot performance in actual operation or the protection of limiting the engine to a safe speed. The FAA does not agree. Present § 23.33 defines the pitch and speed limitations for propellers which are to be used in service. Proposed § 23.65(b), which is identical to the present § 23.65(a)(2), merely authorizes the use of a special test propeller pitch setting if it is necessary to obtain rated engine r.p.m. at V_x.

In proposed § 23.65(c), reference to the airplane configuration was inadvertently omitted. The configuration should be the same as that specified in proposed § 23.65(a), and proposed § 23.65(c) is therefore revised to state that the climb gradient is to be met with the airplane in the configuration prescribed in paragraph (a). In addition, § 23.65(a)(4) is revised to cover means other than cowl flaps for controlling the engine cooling air supply. This change is necessary to provide for turbine engines. The proposal to revise § 23.65 is adopted with the revisions discussed above.

Proposal 6-10. One commentator suggested that a speed to be used in calculating the climb gradients should be specified in proposed § 23.67(c) for purposes of uniformity, but did not make a specific proposal. The FAA believes that the applicant should be allowed to select a climb speed if the airplane meets the minimum gradient and rate of climb at that speed. The proposal to amend § 23.67 is adopted without substantive change.

Proposal 6-11. One commentator objected to the application of proposed § 23.75, concerning landing distance requirements, to airplanes of 6,000 pounds or less maximum weight for reasons stated in his comments on Proposal 6-3 concerning Flight Manuals. For a discussion of these comments, see Proposal 6-3. This commentator also stated that proposed § 23.75(e), concerning wheel brake pressures, is a design requirement and should therefore be placed in Subpart D of Part 23. The FAA does not agree because proposed § 23.75(e) refers to the pressures used in determining the landing performance. The commentator further suggested that the FAA should consider issuing advisory material as to what is considered safe and reliable under proposed § 23.75(f). The wording of proposed § 23.75(f) is the same as that of present § 25.75(b)(3), and this wording has been administered without difficulty for many years. However, the FAA will consider issuing advisory material at a future date if the need is shown.

Another commentator stated that he would not support the inclusion of reverse thrust as an acceptable "other means" of retarding the airplane in determining the landing distance under proposed § 23.75(f), because the landing distance is demonstrated on a dry runway with no provision for a field length factor. The FAA agrees that the effect of wet runways would have to be taken into account in any determination that a means of retarding the airplane is safe and reliable and that consistent results can be expected in service use. It should be noted that proposed § 23.1587(a((6) (Proposal 6-31), as adopted, requires that the kind of surface used in the landing distance tests be described in the Airplane Flight Manual. The proposal to revise § 23.75 is adopted without substantive change.

Proposal 6–12. One commentator objected to the application of proposed § 23.77, concerning balked landing performance, to airplanes of 6,000 pounds or less maximum weight for reasons stated in his comments on Proposal 6–3 concerning Flight Manuals. For a discussion of these comments, see Proposal 6–3. Proposed § 23.77 is adopted without substantive change.

Proposals 6–13 and 2–6. One commentator stated that the option in proposed (and current) § 23.149(a) for the applicant to choose zero yaw or an angle of bank is inconsistent because straight flight with zero yaw (zero sideslip) can only be achieved with some degree of bank. The FAA agrees that bank may be needed to establish straight flight with zero yaw following the failure of a powerplant at low airspeed. The proposed language is the same as that of the current rule and an angle of bank of up to 5 degrees to maintain straight flight has been allowed under the current rule. The directional controllability that must be provided for compliance with §§ 23.147 and 23.205 ensures that bank angles up to 5 degrees under these flight conditions will not be accompanied by excessive yaw angles. Certain design or control features may influence the use of roll control immediately following the failure of a powerplant. Therefore, the proposal (as well as the current rule) allows reference to a zero yaw angle, without bank, for determining the V_{MC} of airplanes which incorporate such features.

Section 23.149(a) is revised in accordance with the discussion of Proposal 6–41 with respect to the modes of failure which must be simulated in demonstrating V_{MC}. The revision requires that the method used to simulate critical engine failure must represent the most critical mode of powerplant failure with respect to controllability that is expected in service, rather than (all) modes of powerplant failure expected in service.

Proposal 2–6 to amend § 23.149(b) (Notice 75–10) was reproposed in Proposal 6–13 for the purpose of clarity. No unfavorable comments were received on proposed §§ 23.149 (b),(c), and (d), and they are adopted without substantive change.

Proposal 6–14. One commentator objected to the application of proposed § 23.161 to airplanes of 6,000 pounds and less maximum weight for reasons stated in his comments on Proposal 6–3 concerning Flight Manuals. For a discussion of these comments, see Proposal 6–3.

Since § 23.21(a) requires that each requirement of this subpart must be met at each appropriate combination of weight and center of gravity within the range of loading conditions for which certification is requested, proposed § 23.161(a)(2)(ii) is revised by deleting the reference to center of gravity and proposed § 23.161(c)(2)(iii) is withdrawn.

Proposal 6–15. No unfavorable comments were received on the proposal to amend § 23.177. Accordingly, the proposal is adopted without substantive change. For comments related to the proposal to amend § 23.177, see Proposal 6–16.

Proposal 6–16. One commentator objected to proposed § 23.181(b), which would require that short period lateral or directional oscillations and combined lateral-directional oscillations ("Dutch roll") be damped to 1/10 amplitude in 7 cycles. The commentator stated that this proposal is more stringent with regard to combined lateral-directional oscillations than proposed § 25.181 (Proposal 6–43) and that proposed § 25.181 retains certain necessary requirements for other short period oscillations that are not contained in proposed § 23.181. Proposed § 25.181(a) would require that oscillations other than combined lateral-directional oscillations be heavily damped, and proposed

§ 25.181(b) would require combined lateral-directional oscillations to be positively (but not heavily) damped. The FAA agrees that a similar distinction should be made in § 23.181 between combined lateral-directional ("Dutch roll") oscillations and other longitudinal, lateral, and directional oscillations.

Current §§ 23.177(a)(4) and (b)(3) (which are deleted by Proposal 6-15) require any short period lateral or directional oscillation to be heavily damped. After considering the comment and after further review, the FAA believes that the current requirement for heavy damping should be retained for short period lateral and directional oscillations other than "Dutch roll" (combined lateral-directional) oscillations. With respect to combined lateral-directional oscillations, the FAA believes that these oscillations do not need to be heavily damped and that the proposed requirements for Part 23 airplanes would provide a satisfactory damping ratio.

The FAA believes the difference between Part 23 and Part 25 requirements with respect to combined lateral-directional oscillations is justified since airplanes certificated under Part 25 have very large variations in size, weight, and moment of inertia, which affect the lateral-directional characteristics and pilot reaction to these characteristics. The FAA therefore believes that it is appropriate that the damping requirement in § 25.181(b) be stated in general terms, as reflected in Proposal 6-43.

The proposal to amend § 23.181 is adopted with the revisions discussed above.

Proposal 6-17. Proposed new § 23.183 would establish a limit on the rate of spiral divergence by requiring that the angle of bank may not increase to more than 40 degrees in less than 12 seconds after the controls are released in a 20-degree banked turn under specified conditions. One commentator objected to the proposal stating that no need had been shown for the proposal and that the tests referred to in the notice were not definitive. After comparing available data on the subject of spiral divergence, the FAA believes that rulemaking on this subject is premature. Accordingly, the proposal to add a new § 23.183 is withdrawn.

Proposal 6-18. Many comments were received on the proposal to amend § 23.221. In view of the conflicting views expressed in these comments, and after further consideration by the FAA, the FAA believes that the proposal to amend § 23.221 is premature, and it is withdrawn.

Proposal 6-19. One commentator stated that the proposal to amend § 23.729(f)(1) is redundant and that the requirement proposed is already in effect. The FAA does not agree with the comment for the reasons stated in the notice.

The proposal to amend § 23.729(f)(1) is adopted as proposed except that the last three words, "the aural warning", of the proposed sentence are replaced with the words "the warning device" so that the wording of the sentence is consistent with the remainder of § 23.729(f).

For other comments related to the proposal to amend § 23.729, see Proposal 6-51.

Proposal 6-20. For comments related to the proposal to revise § 23.1043(b), see Proposal 6-23.

Proposal 6-21. One commentator objected to the proposal to amend § 23.1047 for reasons stated in his comments on Proposal 6-3, concerning Flight Manuals. For a discussion of these comments, see Proposal 6-3. The proposal to amend § 23.1047 is adopted without substantive change.

[For discussion concerning new § 23.1353(g), see Proposals 6-57 and 2-87.]

Proposal 6-22. No unfavorable comments were received on the proposal to revise § 23.1501. Accordingly, the proposal is adopted without substantive change.

Proposal 6-23. The proposal to revise § 23.1521(e) is one proposal in a series of proposals on powerplant cooling requirements and ambient temperature operating limitations and information for Parts 23, 25, 27, and 29 aircraft. This series consists of proposals 6-20, 6-23, 6-29, 6-52, 6-54, 6-56, 6-68, 6-71, 6-74, 6-82, 6-85, and 6-88.

Proposed § 23.1521(e) in conjunction with proposed § 23.1043(b) (Proposal 6-20) would require that an ambient temperature operating limitation be established as the maximum atmospheric temperature at which compliance with the powerplant cooling requirements is shown. In response to these proposals, one commentator stated that no justification for safety or other reasons has been presented for establishing the proposed operating limitations, and that he believes that no safety justification exists. The commentator also stated that the FAA cooling tests and correction factors are very conservative, that it would be necessary to correct cooling tests to at least the equivalent of 125 degrees F at sea level to avoid restrictive operating limitations, and that this would result in increased cooling drag and poorer performance. Another commentator, in regard to proposed § 27.1521(f) (Proposal 6–71), also stated that an ambient temperature limitation has not been shown to be necessary.

After considering these comments, and after further review, the FAA believes that it does not now have enough information to justify the proposed requirements for reciprocating engines in Part 23 airplanes and Part 27 rotorcraft. However, because of the differences between reciprocating and turbine engine installations, particularly in regard to engine components and accessories, and because of the effects of high temperature operation on turbines, Part 23 already requires the establishment of ambient temperature limitations for turbine engines, and for the same reasons the FAA believes that ambient temperature limitations for turbine engines should also be established for Part 27 helicopters. Parts 25 and 29 already require temperature limitations for reciprocating engines (as well as turbine engines) because the reciprocating engines in these aircraft are generally more complex than those used in Part 23 and Part 27 aircraft.

Accordingly, proposed §§ 23.1521(e) and 27.1521(f) are revised to require the establishment of ambient atmospheric temperature limitations for turbine but not for reciprocating engines and proposed §§ 25.1521(e) and 29.1521(e) are adopted without substantive change. In addition, proposed §§ 23.1043(b), 25.1043(b), 27.1043(b), and 29.1043(b), as adopted, are revised to omit the reference to a limitation on the operation of the aircraft, since the establishment of ambient temperature operating limitations is prescribed in proposed §§ 23.1521(e), 25.1521(e), 27.1521(f), and 29.1521(e). For reciprocating engines, §§ 23.1587 and 27.1587 are revised to require that the maximum ambient air temperature for which compliance with the eengine cooling requirements was shown must be included in the performance information section of the Flight Manual.

One commentator recommended that the 100-degrees F minimum in proposed § 25.1043 (b) be deleted, since the ambient temperature at which compliance with the cooling requirements is shown becomes an operating limitation on the airplane and airworthiness is not affected as long as the limitation is followed. The FAA believes that the 100-degree F minimum is appropriate since a lower temperature would be impractical and unrealistic considering summer operations in the United States. It should be noted that an exception to the minimum is provided for winterization installations.

This commentator also stated that the explanation for proposed § 25.1043(b) implies that only a test demonstration at 100 degrees F or higher is acceptable. This is incorrect. Section 23.1043(a)(1) and corresponding provisions in Parts 25, 27, and 29 clearly indicate that tests may be conducted under other conditions and corrected to the prescribed conditions.

One commentator recommended the deletion of the requirements in proposed §§ 27.1583(b) and 29.1583(b) for an explanation of the powerplant limitations in the Airplane Flight Manual, since such explanations would be redundant. A similar comment was received in response to proposed § 25.1583(b). The intent of the proposals was not to require an explanation of each limitation. A separate explanation would not be necessary for a limitation that is self-explanatory. For clarification, proposed §§ 23.1583(b)(2), 25.1583(b)(2), 27.1583(b)(2), and 29.1583(b)(2) are revised to require an explanation of limitations "when appropriate."

In regard to proposed § 23.1583(b), one commentator stated that contrary to the FAA statement in the notice, the establishment of the test temperature as a limitation has not been required in the past and should not be a limitation. The FAA disagrees. Current § 23.1583(j) requires that, for turbine engines, the temperatures used in the climb test prescribed in § 23.1043(b)(2), be furnished as operating limitations in the Airplane Flight Manual. Proposed § 23.1583(b) merely makes it clear that any operating limitations that are established under § 23.1521 must be furnished in the Airplane Flight Manual. In view of the adoption of proposed § 23.1583(b) as revised, § 23.1583(j) is deleted and marked "Reserved."

With regard to the proposal to amend § 25.1583 (Proposal 6–58), one commentator recommended the deletion of proposed paragraph (b)(3) concerning powerplant limitations, and paragraph (l) concerning maneuvering load factors. The commentator stated that if the engine instrument markings have to be changed, it should be handled by a service bulletin. The FAA does not agree. The relation between the powerplant limitations and the instrument markings should be explained in the Manual. The commentator also stated that the load factor (number) is meaningless to the pilot as he cannot determine what it is during a pull-up maneuver. He stated that correlation with bank angle is acceptable, but that transport aircraft do not exceed 60 degree bank angles. The FAA believes that the maneuvering load factor should be retained in the Flight Manual because it is established as an operating limitation under § 25.1531, and the correlation with bank angle provides useful information to the pilot concerning the strength limitations of the airplane.

The proposals to amend §§ 23.1583, 25.1583, 27.1583 and 29.1583 are adopted with the revision discussed above.

For consistency in the terminology used in the cooling tests requirements, a nonsubstantive change is being made to §§ 23.1043(a)(1), 23.1043(d), 27.1043(a)(1), 27.1043(d), 29.1043(a)(1), and 29.1043(d) by deleting the words "maximum anticipated air temperature" and inserting in their place the words "maximum ambient atmospheric temperature".

Proposal 6-24. One commentator objected to proposed § 23.1523, which concerns the establishment of the minimum flight crew, stating that it is not necessary to make all aircraft conform to the requirements of Part 25. The FAA believes that proposed § 23.1523 specifies the appropriate requirement that should be considered in determining the minimum flight crew for Part 23 airplanes.

Another commentator said that specification of minimum crew is an operational item that may vary with the type of operation, e.g., for compensation or hire which by law must be conducted in accordance with the highest standards. He concluded that rules specifying the number of crew members for specific operations should be in the operating regulations. The FAA agrees that certain rules concerning the number of crew members properly belong in the operating rules, and this is done, for example, in Subpart M of Part 121. However, under current § 23.1523, the minimum crew is established for VFR only, without requiring consideration of the additional crew duties that arise when IFR operations are authorized. These duties may be imposed by the design and operating characteristics of the aircraft and by its installed equipment. The FAA believes that they must therefore be evaluated during the type-certification process. The proposal to revise § 23.1523 is adopted without substantive change.

Proposal 6-25. One commentator objected to proposed § 23.1541 concerning placards in airplanes of 6,000 pounds or less maximum weight for reasons stated in his comments on Proposal 6-3 concerning Flight Manuals. For a discussion of these comments, see Proposal 6-3. Proposed § 23.1541 is adopted without substantive change.

Proposal 6-26. One commentator objected to proposed § 23.1559 concerning placards in airplanes of 6,000 pounds or less maximum weight for reasons stated in his comments on Proposal 6-3 concerning Flight Manuals. For a discussion of those comments, see Proposal 6-3. Proposed § 23.1559 is adopted without substantive change.

Proposal 6-27. Proposed § 23.1567(b)(2) would require that utility category airplanes that do not meet the spin requirements for acrobatic category airplanes have a placard in clear view of the pilot stating "Spins prohibited." One commentator said that the proposal is redundant and would add to the already confusing proliferation of cockpit placards. The FAA does not agree since the proposal would prevent any possible confusion as to whether a particular utility category airplane has been approved for spins. The proposal is adopted without substantive change.

Proposals 6-28, 2-39, 2-43, and 2-45. Proposed § 23.1581(a) is revised in accordance with the discussion of the proposal to amend § 25.1581 (Proposal 6-55). For another comment related to Proposal 6-28, see Proposal 6-3.

Disposition of Proposal 2-39 to add a new § 23.1353(f) (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-28. For comments related to proposed § 23.1353(f) and for an explanation of the revision to proposed § 23.1353(f), see the discussion of Proposal 2-37 under Proposal 6-57. Disposition of Proposal 2-45 to revise § 23.1581(b) and to add a new § 23.1581(d) (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-28.

One commentator, who agreed in general with proposed § 23.1581(b), recommended several clarifications. He indicated that the title "Pilot's Operating Handbook" should be allowed as an alternative to "Airplane Flight Manual." The FAA has no objection to the title "Pilot's Operating Handbook" if the title page also includes a statement indicating that the document is an FAA-required Airplane or Rotorcraft Flight Manual.

The commentator also indicated that the FAA should delete any requirement for individual page approval for operating limitations in Handbooks that meet a specification acceptable to the Administrator. Proposed § 23.1581(b)(1) would require approval of each page containing the prescribed operating limitations whereas current § 23.1581(b) requires that each part of the Airplane Flight Manual containing information presented in §§ 23.1583 through 23.1589 be approved.

The intent of proposed §§ 23.1581(b)(1) and (b)(2) was to require that the presentation of operating limitations be approved by the FAA and be clearly identified as such while at the same time providing an option for the presentation of the other required information. This option would have provided that each page containing the information prescribed in §§ 23.1585 through 23.1589 had to be determined in accordance with the applicable requirements of this part and had to be approved or the information presented in its entirety in a manner acceptable to the Administrator.

In light of the comments received and after further review, the FAA believes that this intent will be accomplished in a simpler manner, and will be more consistent with Parts 25, 27, and 29 flight manual requirements, by retaining the current requirements and providing an alternative to the current requirements in a separate paragraph which provides that each part containing operating limitations must be approved and limited to such information, and the information prescribed in §§ 23.1585 through 23.1589 must be determined in accordance with the applicable requirements of this part and presented in a manner acceptable to the Administrator. Proposed §§ 23.1581(b)(1) and (b)(2) are revised to reflect the changes discussed above.

The references in proposed §§ 23.1581(b)(1) and (b)(2) to the information prescribed in §§ 23.1581(c) (paragraph (a)(2) as adopted) have been deleted to be consistent with the flight manual requirements of Parts 25, 27, and 29.

One commentator objected to Proposal 2-45 on the grounds that procedures, performance data, and loading information for any airplane certificated under Part 23 would not have to be approved by the FAA. This comment evidently refers to proposed § 23.1581(b)(2)(i) (which is incorporated into paragraph (b)(2) as adopted), under which the information prescribed in §§ 23.1585 through 23.1589 would not be identified as FAA-approved, if this information in its entirety is presented in a manner acceptable to the Administrator. The FAA does not agree with the comment. Under the proposal, the information would have to be determined in accordance with the applicable requirements of Part 23. In finding that a manual is acceptable, the FAA would review the manual to determine that the required information is complete and accurate. The manual would also be reviewed to ensure that any additional information provided by the applicant is not in conflict with required information or contrary to the applicable airworthiness requirements. The FAA believes that § 23.1581(b)(2) will provide an adequate method of review of the information prescribed in §§ 23.1585 through 23.1589.

The proposals to amend § 23.1581 are adopted with the revisions discussed above.

Disposition of Proposal 2-43 to amend § 23.1555 (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-28. No unfavorable comments were received on Proposal 2-43, however, proposed § 23.1555(c)(3) is revised by deleting the words "and in the Airplane Flight Manual" in view of the requirements of §§ 23.1581 and 23.1587(a)(2), as adopted.

Proposal 6-29. For comments related to the proposal to revise § 23.1583(b), see Proposal 6-23.

Proposal 6-30. One commentator objected to the application of proposed § 23.1585, concerning operating procedures, to airplanes of 6,000 pounds or less maximum weight for reasons stated in his comments on Proposal 6-3 concerning Flight Manuals. For a discussion of these comments, see Proposal 6-3.

The proposal to amend § 23.1585 is adopted without substantive change.

[For discussion concerning new § 23.1585(e), see Proposals 6-57 and 2-87.]

Proposals 6-31 and 2-46. One commentator objected to the application of proposed § 23.1587, concerning performance information, to airplanes of 6,000 pounds or less maximum weight for reasons stated in his comments on Proposal 6-8 concerning Flight Manuals. For a discussion of these comments, see Proposal 6-8.

Another commentator stated, in response to proposed § 23.1587(a)(7), which would require information on the steady rate or gradient of climb, that if gradient data are presented, conversion charts should be included, and that ideally each determination should be available; however, he concluded that the option of one or the other should be deleted and a definite requirement adopted. The commentator misinterpreted the proposed requirement. Section 23.65(c), as adopted by this amendment, requires the determination of a gradient of climb for turbine engine powered airplanes. Proposed § 23.1587(a)(7) is worded so as to take into account the requirement of § 23.65(c), not to provide an option for the applicant, i.e., whether gradient of climb or rate of climb is furnished under § 23.1587(a)(7) will be determined by the applicable requirement of §§ 23.65 and 23.77.

Section 23.1587 is adopted as proposed, except that a new § 23.1587(a)(9) has been added to include information on the maximum ambient temperature at which compliance with the cooling requirements is shown for reciprocating engines. This addition is explained in the discussion of the comments on Proposal 6-23.

Disposition of Proposal 2-46 (Notice 75-10), which proposed to delete the second sentence of present § 23.1587(a)(2), was deferred so it could be considered with Proposal 6-31. No unfavorable comments were received on Proposal 2-46. Proposal 2-46 was reproposed in Proposal 6-31, and is adopted without substantive change with the adoption of Proposal 6-31.

Proposal 6-32. Proposed new § 25.21(f) would require that when surface winds must be considered, the wind velocity must be measured at or corrected to a height of 10 meters above the surface, because the National Weather Service is standardizing on a height of 10 meters for reporting winds at airports. One commentator said that since the purpose of the proposal is standardization of Airplane Flight Manual performance information with respect to reported winds for takeoff or landing in service operations, the requirement should be placed in the flight manual requirements under § 25.1587(c)(1)(i) instead of in § 25.21. The FAA agrees that this is one purpose of the proposal but there are flight requirements other than those concerning performance information that require consideration of surface winds. Therefore, the FAA believes that it is more appropriate to include the proposed requirement in § 25.21. However, proposed § 25.21(f) is revised to clarify its applicability.

The proposed change to § 25.21(d), which deals with tolerances for variables in flight testing, would delete the requirement that the tolerance on wind during takeoff and landing tests must be based on the wind measured at a height of 6 feet above the runway. The commentator said that performance analysis is usually based on winds at the height of the mean aerodynamic center of the airplane above the runway surface, and that the data in the Airplane Flight Manual is then corrected to the currently used height of 50 feet. The commentator recommended that this procedure be continued, except that the wind velocities in the Flight Manual should be based on a height of 10 meters instead of 50 feet. The FAA believes that the proposed deletion of the 6-foot height from § 25.21(d), together with proposed § 25.21(f), as revised, would allow continued use of the procedure recommended by the applicant.

The commentator also suggested that the correction chart in Civil Aeronautics Manual 4b Appendix A, Figure 2, be considered for inclusion in Part 25. The FAA does not believe that it is necessary to include this information in the rules.

The proposal to amend § 25.21 is adopted with the revisions discussed above.

Proposal 6-33. For comments related to the proposal to amend § 25.29, see Proposal 6-5.

Proposal 6-34. Several commentators objected to the method of computing V_1 (takeoff decision speed) in proposed § 25.107(a) on the grounds that—(1) the speed increment between V_{EF} (engine failure speed) and V_1 should not be determined with all engines operating because the accelerate-stop distance determined under proposed § 25.109(a) would then be unnecessarily large for the critical engine failure condition (especially for twin-engine airplanes); and (2) placing the 2.0-second time delay between V_{EF} and V_1 in proposed § 25.107(a)(2)(ii) does not adequately provide for these instances in which the pilot may have to analyze and react to an event that occurs immediately before reaching V_1.

It was recommended that proposed § 25.107(a) be revised so that V_1 is determined by adding to V_{EF} the speed gained with the critical engine inoperative during the time interval between the instant at which the critical engine is failed and the instant at which the test pilot recognizes and reacts to the engine failure, as indicated by the pilot's application of the first retarding means during accelerate-stop tests (the 2.0-second minimum time delay that was proposed to be included between V_{EF} and V_1 would be deleted). It was further recommended that proposed § 25.109(a) be revised so that a 2.0-second time delay following V_1 is incorporated into the determination of accelerate-stop distances, as follows: (1) for the engine failure case, the acceleration of the airplane from V_{EF} would be with the critical engine inoperative and would continue for 2.0 seconds after reaching V_1; and (2) for the other event case, the acceleration of the airplans would be with all engines operating and would continue for 2.0 seconds after reaching V_1.

After considering all of the comments on these proposals and after further review, the FAA agrees with these comments and the recommendations. The FAA believes that the recommended revisions would provide for events other than engine failure, even though the speed increment between V_{EF} and V_1 would be determined with the critical engine inoperative instead of all engines operating, because the accelerate-stop distance for the other event case would be determined with all engines operating from the start of takeoff until 2.0 seconds after V_1 is reached. Further, the FAA believes that deleting the 2.0 second minimum time delay from the determination of V_1 and inserting a 2.0-second delay after V_1 in the determination of the accelerate-stop distance would be more appropriate for most rejected takeoff situations, since stopping requires a positive decision and action by the pilot. Proposed §§ 25.107(a) and 25.109(a) are revised accordingly.

Several commentators objected to the 2.0-second (minimum) time delay used in computing V_1 under proposed § 25.107(a)(2)(ii) on the grounds that it would increase the required take-off runway lengths, particularly in the engine failure case, and that such increases are not justified. One commentator recommended that the time delay be reduced to 1.0 second. The revisions discussed above significantly reduce the effect of the 2.0-second time delay on the required accelerate-stop distance in the engine failure case. Under § 25.107(a) as proposed, the airplane would be accelerated to a V_1 speed equal to V_{EF} (engine failure speed) plus the speed gained with all engines operating during a total time interval of about 3 seconds (i.e., during the time required for the test pilot to recognize and react to an engine failure in accelerate-stop tests, plus a 2.0-second time delay for service operations). Under proposed § 25.109(a), the accelerate-stop distance for the engine failure case would be determined by accelerating the airplane from V_{EF} to the V_1 speed determined under proposed § 25.107(a), but with the critical engine inoperative instead of with all engines operating. As pointed out by one of the commentators, the total time interval between engine failure and application of the first retarding means could then become about 6 seconds for a twin-engine airplane in the engine failure case, and the distance traversed during the additional 3 seconds (beyond the time interval prescribed in § 25.107(a) would be included in the accelerate-stop distance. However, under the revisions incorporated in §§ 25.107(a) and 25.109(a) as adopted, the revised V_1 speed is equal to V_{EF} plus the speed gained with the critical engine inoperative during the test pilot's recognition-reaction time interval with no further time delay. The accelerate-stop distance for the engine failure case is then determined by accelerating the airplane with one engine inoperative from V_{EF} to the revised V_1 speed and then for an additional 2.0 seconds, before the first retarding means is applied. Under these revisions, a 2.0-second allowance for time delays in service operation is retained, but the total time interval between V_{EF} and application of the first retarding means in the engine failure case would be significantly reduced (for example the reduction could be from about 6 seconds to about 3 seconds for a twin engine airplane). The accelerate-stop distance for the engine failure case would be reduced accordingly. The FAA does not believe that any further revision is warranted because the 2.0-second delay (incorporated into § 25.109 as adopted rather than § 25.107) is necessary to allow for a surprise element and other operational factors not covered in accelerate-stop tests.

One commentator proposed that V_1 speeds be established as recognition speeds for both engine failure and other event cases. However, it is not clear how a recognition time for "other events" would be determined since there is a large variety of possible events that could lead to a rejected takeoff.

Another commentator, in addition to suggesting changes similar to those already made as discussed above, recommended that V_1 be established as a failure recognition speed which would be determined by adding to the speed at which the initial failure is assumed to occur, the time between the failure and the pilot's recognition of the failure (assumed to be 2.0 seconds before his reaction to the failure), and the time not less than 2.0 seconds, to allow for time delays in service under reasonably unfavorable operating conditions. The FAA does not agree that there should be a 2.0-second minimum delay, regardless of the pilot's actual reaction time, in determining V_1 under § 25.107(a), because proposed § 25.109(a) as revised will require that the accelerate-stop distance computations include acceleration of the airplane for 2.0 seconds after V_1 is reached.

This commentator further proposed that closing of the throttles be specified in proposed § 25.109 as the first action to be taken in stopping the airplane, with subsequent actions at intervals of not less than one second. Current § 25.101(h) already requires that the procedures used in determining the accelerate-stop distance must be able to be consistently executed in service by crews of average skill, and must include allowance for any time delays in the execution of the procedures that may be reasonably expected in service. The order in which the retarding devices are applied and the subsequent time delays will be established during type certification under the general provisions of § 25.101(h).

One commentator objected to the requirement in proposed § 25.107(a) that V_{EF} may not be less than V_{MCG} (minimum control speed on the ground) determined under (proposed) § 25.149(e). The commentator stated that it should only be required that V_1 not be less than V_{MCG} because if an engine failure is recognized between V_{EF} and V_1 the takeoff should be aborted. However, under proposed §§ 25.107(a) and 25.109(a), as revised V_1 will be placed at the speed at which the test pilot recognizes and reacts to an engine failure during accelerate-stop tests and the 2.0-second time delay will be inserted after V_1 instead of between V_{EF} and V_1 as proposed. This revision allows V_1 to be very close to V_{EF}. Therefore, the effect on takeoff and accelerate-stop distances of requiring that V_{EF} not be less than V_{MCG} has been significantly reduced because of the deletion of the minimum 2.0-second delay between V_{EF} and V_1. In addition, the FAA believes that V_{EF} should not be less than V_{MCG} so that there will be at least a small margin between V_{MCG} and V_1 to ensure controllability of the airplane at V_1.

One commentator recommended that the proposals containing V_1 and accelerate-stop distances be made retroactive to existing transport category airplanes one year after the date of their adoption. Current § 25.101(h) already provides that the procedures used in determining accelerate-stop distances include allowance for time delays reasonably expected in service. The purpose of the present proposals is to clarify and standardize the method of including an appropriate time delay in the accelerate-stop performance determination for airplanes type certificated in the future.

In regard to proposal 6-2, which would change the definition of V_1 in § 1.2 from "critical engine failure speed" to "takeoff decision speed," one commentator considered the proposed definition to be inadequate because "decision" is an undefined quantity. The commentator recommended that the proposal be revised to state that V_1 means the speed at which the flight crew has recognized an engine failure or other event and takes action either to reject or continue the takeoff. The significance of V_1 with respect to accelerate-stop distance, takeoff distance, and the related operating procedures is explained in the Airplane Flight Manual and the FAA believes it is too complex to be completely described in a brief definition in § 1.2. Accordingly, the proposed amendment of § 1.2 is adopted without substantive change.

The proposals to revise §§ 25.107(a) and 25.109(a) are adopted with the revisions discussed above.

Proposal 6-35. One commentator stated that if the intent of proposed §§ 25.107(d) and (e)(1)(iv) with respect to the engine-out V_{MU} is to ensure controllability, the V_R–5 tests required by § 25.107(e)(3) should be expanded to require the test over the full range of certification conditions and all references to one-engine-inoperative V_{MU} should be deleted from §§ 25.107(d) and (e). The FAA does not agree with this recommendation because it would ignore the performance aspects (thrust-to-weight ratio) of the one-engine-inoperative V_{MU} demonstration.

Another commentator stated that flight test experience has shown that trim and control drag is accounted for with the thrust/weight ratio corresponding to the one-engine-inoperative condition used in the test, and that actual engine-out V_{MU} tests result in the same V_{MU} as tests conducted at the simulated engine-out thrust-to-weight ratio. The FAA agrees, and the last sentence of proposed § 25.107(e)(iv) is deleted. The proposal to amend § 25.107 is adopted with the revision discussed above.

Proposal 6-36 . For comments related to proposed § 25.109(a), see Proposal 6-34.

Proposal 6-37. One commentator agreed with the proposed change to § 25.111(a)(2), which would delete the reference to V_1 and substitute V_{EF} in its place to make § 25.111(a) consistent with proposed § 25.107(a) (Proposal 6-34). However, this commentator did not agree with making the same change to § 25.111(a)(3), and said that the present reference to V_1 in that paragraph is correct for the new definition of V_1 (i.e., as defined in proposed §§ 1.2 and 25.107(a)). The FAA does not agree with the comment on proposed § 25.111(a)(3) because it would leave a gap in the requirements for the speed range between V_{EF} and V_1.

Accordingly, the proposal to amend §§ 25.111(a)(2) and (a)(3) is adopted without substantive change.

Proposal 6-38. Proposed § 25.121(e) would require the determination of the vertical distance required to make a transition from a 3-degree descent path in the landing configuration with the critical engine inoperative to a stabilized climb condition. Several commentators stated that the vertical distance determined in this manner should not be considered a minimum decision height for approaches. The FAA agrees, since the establishment of decision height requires consideration of many operational factors. Some commentators stated that the landing configuration in the proposal is not appropriate for one-engine-inoperative approaches. One commentator recommended that the horizontal as well as the vertical distance for transition to approach climb be determined, and referred to the work of the ICAO Obstacle Clearance Panel on this subject. Another commentator recommended that the required determination take into account the minimum control speed, V_{MC}. In light of the comments received, and after further review, the FAA believes that proposal 6-38 should be withdrawn.

Proposal 6-39. Several commentators objected to the proposal to amend § 25.123(a) on the ground that current § 25.123(a) is conservative and has the advantage of greater simplicity. The FAA agrees and the proposal to amend § 25.123(a) is therefore withdrawn.

Proposal 6-40. One commentator recommended that proposed § 25.143(b) be withdrawn and that current § 25.143(b) be retained on the ground that there are areas within the flight envelope from takeoff to landing where the failure of a second engine cannot be handled smoothly and safely. The commentator also stated that the proposed amendment is vague and could produce confusion with respect to time between failures, and that it could be interpreted to require a combination of double engine failure and configuration changes. The FAA agrees that the proposed rule requires some clarification, but does not believe that the current § 25.143(b) should be retained. With respect to failure of a second engine on airplanes with three or more engines, the FAA believes that failure of a second engine can be reasonably expected in the enroute, approach, and landing stages of flight after failure of one engine earlier in the flight.

Therefore, proposed § 25.143(b) is revised to require consideration of the sudden failure of the second critical engine when the airplane is in a trimmed condition with one engine inoperative in the enroute, approach, and landing configurations. This revision also clarifies the requirement with respect to time between engine failures by providing that the airplane is in a trimmed condition with one engine inoperative when the second engine is failed. In regard to combination of engine failure and configuration changes, it should be noted that the introductory sentence of proposed § 25.143(b) refers to "probable operating conditions," and that some change of configuration may be desirable after engine failure, e.g., retracting the landing gear for a go-around after engine failure in the landing configuration.

Another commentator considered the proposed configuration change requirement to be too general and vague and suggested that the proposed requirement contain certain specific criteria. The commentator also recommended that interpretative material be included in the rule or in the associated Flight Test Guide. The FAA does not agree. The FAA believes that the wording of the proposed rule is clear and would accomplish the intended purpose.

The proposal to amend § 25.143(b) is adopted with the revision discussed above.

No unfavorable comments were received on the proposal to amend § 25.143(c), which would reduce the maximum allowable rudder force for temporary application in meeting the controllability requirements, from 180 pounds to 150 pounds. Accordingly, the proposal is adopted without substantive change. For consistency with § 25.143(c), as adopted, and since flight test experience has shown that 180 pounds may make control difficult for some pilots under some flight conditions, § 25.147(a) is amended by deleting the reference to "180 pounds" and inserting in its place "150 pounds".

Proposal 6-41. One commentator recommended deletion of proposed § 25.149(a), which would require that the method used to simulate critical engine failure must represent the modes of powerplant failure expected in service. The FAA does not agree. This provision is necessary to ensure that the most adverse condition with respect to controllability is considered. To clarify this intent, § 25.149(a) is revised to require consideration of the most critical mode of powerplant failure with respect to controllability expected in service. This commentator objected specifically to dynamic engine cut demonstrations because of the hazards involved. The FAA believes that dynamic effects should be considered during type certification, since they might occur in service operations.

Upon further review, the FAA believes that specific guidance as to the setting of the propeller on propeller-driven airplanes is necessary with regard to proposed § 25.149(c). Current § 25.149(b)(8) specifies the setting of the propeller for reciprocating engine-powered airplanes. Current § 25.149(c)(5) specifies that for turbine engine-powered airplanes, the airplane must be ". . . in the most critical takeoff configuration existing along the flight path . . ." and has been administered to require that the setting of the propeller of turbine engine-powered, propeller-driven airplanes be the same as that specified in current § 25.149(b)(8). Accordingly, current § 25.149(b)(8) is retained and redesignated § 25.149(c)(7), to be applicable to all propeller-driven airplanes.

One commentator stated that the pilot should be provided with information regarding the effects of bank angle on V_{MC}. The FAA does not have enough information at this time to justify the suggested requirement.

Proposed § 25.149(e) would require the determination of a minimum control speed on the ground, V_{MCG}, for use in establishing takeoff speeds under proposed § 25.107 (see Proposal 6-34). One commentator recommended that the second sentence of proposed § 25.149(e) be revised to read "During this demonstration, the permissible lateral deviation of the path of the airplane would be limited to 30 feet." He said that the revision would eliminate the possibility of misinterpretation. The FAA believes that the language of the proposal is clear; however, it may be too restrictive in requiring the ground track to be parallel to or converging toward the centerline of the runway when the airplane is rotated for takeoff, and thereby unnecessarily delay rotation in determining takeoff performance under §§ 25.107(e) and 25.111. Section 25.149(e) is therefore revised to state that the airplane's path, from the point at which the critical engine is made inoperative to the point at which recovery to a direction parallel to the runway centerline is completed, may not deviate more than 30 feet laterally from the centerline. The adopted rule would allow the airplane to be rotated for takeoff before recovery to a direction parallel to the runway centerline is completed; however, it should be noted that it requires that V_{MCG} must be determined to enable the takeoff to be safely continued using normal piloting skill. The commentator also recommended that proposed §§ 25.149(e)(3) and (e)(5) be deleted because flight tests have proven that gross weight and center of gravity have no effect on V_{MCG}. The FAA does not agree. The airplane's acceleration varies with its weight, and this may affect directional control and lateral deviation. The center-of-gravity location may also affect directional stability and control on the ground.

One commentator stated that proposed § 25.149(e) would allow a lateral deviation of 30 feet during the determination of V_{MCG}, whereas the current FAA Flight Test Handbook recommends 25 feet and the Air Force requires 25 feet. The commentator recommended that 25 feet be specified in the adopted rule. The FAA believes that the 30-foot deviation limit will assist in international standardization in this area. In addition it should be noted that § 25.107(a)(1) as adopted (see discussion of Proposal 6-34) requires V_{EF} to be not less than V_{MCG} and V_1 to be greater than V_{EF}, thus providing a small controllability margin at V_1.

Several commentators recommended that the proposal be revised to allow the use of nose wheel steering in the determination of V_{MCG} under § 25.149(e), if control is through the rudder pedals and the demonstration is made on a wet runway. The FAA does not agree. The effectiveness of nose wheel steering depends to a large degree on runway friction characteristics and the load on the nose wheel. Certification tests on a wet runway would not cover the more extreme slippery runway conditions or all possible variations in takeoff conditions and techniques likely to occur in service. The FAA therefore believes that V_{MCG} should be determined without the use of nose wheel steering, as stated in proposed § 25.149(e).

In regard to the airplane configuration used in determining V_{MCG}, one commentator recommended that proposed § 25.149(e)(1) be revised to specify each takeoff configuration instead of the most critical takeoff configuration, to allow a separate V_{MCG} for different flap settings. The FAA agrees that an applicant should be allowed to determine a separate V_{MCG} for different takeoff configurations but believes that the applicant should also have the option of determining a V_{MCG} value for only the most critical takeoff configuration. Proposed § 25.149(e)(1) is revised accordingly.

Proposed § 25.149(e)(2) would require that V_{MCG} be determined with maximum permissible takeoff power or thrust on the operating engines; however, the word "permissible," in relation to power or thrust, is not defined or used elsewhere in the performance and flight characteristics requirements. For consistency with §§ 25.101(c) and 25.149(c)(1), the word "permissible" is replaced by "available" in § 25.149(e)(2) as adopted. It should be noted that § 25.101(c) refers to the propulsive thrust available under the particular flight condition and thus provides for any difference between the takeoff thrust set during takeoff and the thrust available in flight for a go-around.

Proposed §§ 25.149(f), (g), and (h) would require the determination of two new minimum control speeds, V_{MCL} and V_{MCL-2}, associated with an engine failure during landing approaches that are initiated with all engines operating and with one engine inoperative, respectively. One commentator said that these proposals are inconsistent with the V_{MCL} definitions being considered in the development of wet runway landing performance rules. The commentator recommended that these proposals be deleted until an acceptable rational landing rule is established. Another commentator stated that V_{MCL} and V_{MCL-2} would serve no useful purpose and may confuse flight crews. The FAA does not agree with these comments. These proposals are intended to cover the controllability aspects of an engine failure during landing approach. Proposed § 25.149(f) as revised is intended to determine a minimum control speed for the situation where an engine fails after power or thrust has been increased to make a go-around from an approach with all engines operating. For airplanes with three or more engines, proposed §§ 25.149 (g) and (h) as revised are intended to determine a minimum speed for maintaining safe control during the power or thrust changes that are likely to be made following the failure of a second engine during an approach initiated with one engine inoperative. The FAA believes that these proposals, with revisions discussed, should be adopted at this time to provide information for use in pilot training and service operations.

One commentator noted that proposed §§ 25.149(f)(5), (g)(5), and (h)(2) specify "maximum permissible power" in the determination of V_{MCL} and V_{MCL-2}. The commentator recommended that this be changed to "takeoff or maximum permissible power" as used in present § 25.149. Another commentator said that it is not clear whether "maximum permissible thrust" in proposed §§ 25.149(f), (g), and (h) means maximum takeoff (or contingency) thrust, or whether a lower thrust can be scheduled. This commentator also stated that takeoff (or contingency) thrust would represent an increase in severity with respect to both the British Civil Air Regulations and present § 25.149(d), and that the thrust to be associated with recovering control following a sudden engine failure in §§ 25.149(f) and (g) should be the power required for a 3-degree approach, and the thrust range to be associated with maintaining straight flight thereafter should be from minimum power to power for level flight or maximum power, whichever occurs first.

As explained in the preceding discussion of § 25.149(e)(2), current § 25.149(c)(1) uses the words "maximum available takeoff power or thrust". The FAA believes that, for V_{MCL}, the power or thrust condition at the time of engine failure should be the thrust associated with a go-around and therefore believes that maximum available takeoff power or thrust should be prescribed in § 25.149(f) since the approach climb requirements in § 25.121(d) allow use of available takeoff power or thrust. Proposed § 25.149(f) is revised accordingly.

However, since there are no performance requirements for a go-around with two engines inoperative, the FAA believes that the initial power condition at the time of failure of the second engine in § 25.149(g) for V_{MCL-2} should be that for a 3-degree approach with one engine inoperative. This is one of the initial power conditions prescribed in proposed § 25.149(h). In regard to the maximum power or thrust to be applied after the second engine is made inoperative, the FAA believes that the value of V_{MCL-2} to be furnished as information to the pilot should be based on the power or thrust that provides the maximum performance capability of the airplane without exceeding the powerplant limitations, i.e., maximum available takeoff power or thrust at the upper end of the range, and minimum available power or thrust at the lower end of the range. Proposed § 25.149(g) is revised accordingly.

Since V_{MCL} will be determined with maximum available takeoff power, proposed § 25.149(h) is revised so that the requirement of changing the power or the operating engines after failure of the critical engine only applies to V_{MCL-2}.

One commentator said that the critical weight for V_{MCL} can be the lowest weight, when a 5-degree bank angle is used, and he therefore recommended that proposed §§ 25.149(f)(4) and (g)(4) be revised to specify the most unfavorable weight in the range of landing weights, instead of the maximum sea level landing weight (or any lesser weight necessary to show V_{MCL}). The FAA agrees that light weight may be critical for V_{MCL} or V_{MCL-2} but does not believe that the recommended wording change is necessary. The proposal is consistent with current § 25.149(c)(4), and light weight conditions are considered under the current rule.

One commentator stated that the proposal requires determination of V_{MCL} and V_{MCL-2} but does not appear to require that this information be made available to flight crews or that it be used in determining the approach speed. The commentator recommended that the proposal be changed to require that V_{MCL} and V_{MCL-2} be included in the Airplane Flight Manual and also that the landing performance requirements in § 25.125 be amended to take account of V_{MCL}. The FAA does not have sufficient information to justify changing the landing performance requirements in the manner recommended by the commentator. However, information regarding V_{MCL} and V_{MCL-2} would be required to be furnished in the Airplane Flight Manual pursuant to the provisions of § 25.1585(a)(1).

For a comment related to the clause "either with zero yaw or with an angle of bank of not more than 5 degrees", which is contained in proposed §§ 25.149(e), 25.149(f), and 25.149(g), see Proposal 6–13.

The proposal to amend § 25.149 is adopted with the revisions discussed above.

Proposal 6–42. One commentator stated that the exception in proposed § 25.177(b)(2) for the speed range from V_{MO}/M_{MO} to V_{FC}/M_{FC} should also be applicable to the speed range from 1.2 V_{S1} to V_{MO}/M_{MO}. The FAA does not agree. V_{MO}/M_{MO} is the maximum operating limit speed. Gradual divergence that is easily recognizable and controllable by the pilot is allowed in the speed range above V_{MO}/M_{MO} because it is expected that operation at speeds above V_{MO}/M_{MO} will occur only for brief periods and that flight control demands will in general be limited to the restoration of flight at speeds below V_{MO}/M_{MO}.

Accordingly, the proposal to revise § 25.177(b) is adopted as proposed except that a provision for maximum flap extended speed and maximum landing gear extended speed has been added for clarification and consistency with the present rule.

Proposal 6–43. Proposed § 25.181(b) would require that combined lateral-directional ("Dutch roll") oscillations be positively damped, i.e., diminish after a disturbance, but it does not specify the degree of damping. One commentator recommended that the proposal be revised to state that lateral-directional oscillations should be damped but that neutral damping or mild divergence would be acceptable if it is easily controllable by the pilot. The commentator said the proposal is unnecessarily restrictive following the failure of a stability augmentation device, since the device must be designed to meet § 25.21(e), and that the damping required should be related to the frequency and amplitude of the oscillation, the pilot tasks, and environmental effects. The commentator also said that, if unsatisfactory damping following a failure is confined to an avoidable flight area or configuration and is controllable to return the aircraft to a satisfactory condition for safe flight, the lack of appreciable positive damping may be acceptable. The FAA does not agree with this recommendation. Current § 25.181 requires any short period oscillation to be heavily damped, and the proposal would require that combined lateral-directional oscillations be positively damped instead of heavily damped. The change recommended by the commentator would increase the pilot's tasks and could result in an unsafe situation when operating in rough air. Section 25.672(c) already allows degradation of stability and other flight characteristics after any single failure in a stability augmentation system if the airplane is safely controllable and the resulting stability characteristics allow continued safe flight and landing.

Another commentator recommended that the proposal should be changed to raise the lower limit of the speed range for positive stability from the stalling speed to 1.2 V_{S1}. The proposal is the same as the current rule with respect to the lower speed limit of the speed range for positive stability and the FAA does not have sufficient information at the present time to justify raising the lower speed limit to 1.2 V_{S1}.

The proposal to revise § 25.181 is adopted without substantive change.

Proposal 6–44. One commentator recommended that the proposal to amend § 25.201 and the proposal to amend § 25.207 (Proposal 6–45) be withdrawn in light of current FAA studies on landing distances which may result in a new stall requirement. The FAA does not agree with this recommendation because the proposals for §§ 25.201 and 25.207 deal with stall demonstration and stall warning, and current studies for the landing distance rules do not include changes to §§ 25.201 and 25.207.

Another commentator stated that many modern airplanes are accepted as having correct stalling characteristics even though these occur before reaching the angle of attack for maximum lift, and suggested that the phrase "at an angle of attack measurably greater than that for maximum lift" be deleted from proposed § 25.201(d)(1). Proposed § 25.201(d)(2) sets forth an exception to the requirements of proposed § 25.201(d)(1) (this would be a relaxation of the requirement in current § 25.201(c)(2) with respect to those instances in which the airplane may be considered to be stalled). The FAA does not believe any further relaxation would be justified.

One commentator expressed concern that proposed § 25.201 might result in unwarranted increases in operational speeds and runway length requirements; however, no explanation of this comment was provided. Some operating speeds are affected by stalling speeds which are determined under §§ 25.103, 25.203, and 25.201. Proposed § 25.201(d)(2) provides that for an airplane demonstrating an unmistakable inherent aerodynamic warning in a particular configuration of a magnitude and severity that is a strong and effective deterrent to further speed reduction, the airplane may be considered stalled when it reaches the speed at which the effective deterrent is clearly manifested. (This exception is present in the current rule but is only applicable to those airplanes demonstrating the required degree of warning in all required configurations.) The FAA believes that it is necessary that an applicant be allowed to limit the stall demonstration to the speed where a strong and effective deterrent (such as severe buffeting) is clearly manifested because operation of the airplane at any lower airspeed may be hazardous. Therefore, the FAA believes that any increase in an operating airspeed because a stall demonstration was limited to the airspeed at which there exists an effective deterrent, as provided in proposed § 25.201(d)(2), is justified.

Accordingly, the proposal to amend § 25.201 is adopted as proposed, except that a nonsubstantive change is made to proposed § 25.201(d)(2) to clarify its intent. The proposal to amend § 25.207 is adopted without substantive change.

Proposal 6-45. For comments related to the proposal to amend § 25.207, see Proposal 6-44.

Proposal 6-46. Proposed § 25.233(a) would change the requirements concerning ground looping tendency in cross winds by substituting "25 knots" in place of "0.2 V_{s0}" for the prescribed wind velocity. Several commentators objected to the use of 25 knots for the required wind velocity, stating that the present requirement corresponds to about 20 knots for most airplanes, and that standardizing on a height of 10 meters above the surface for airport wind velocities (see Proposal 6-32 for § 25.21(f)) would also increase the required cross wind component (as compared with the present practice of correcting wind velocity to a height of 50 feet). The FAA agrees that 20 knots would be an appropriate minimum value for the cross wind component; however, this would be less severe than the present rule for airplanes with a stalling speed (V_{s0}) greater than 100 knots. Therefore, § 25.233(a) is revised to replace "0.2 V_s" with "20 knots or 0.2 V_{s0}, whichever is greater, except that the wind velocity need not exceed 25 knots".

One commentator suggested that the rule be written to allow the use of analysis to show acceptable ground handling characteristics for cross wind components greater than 20 knots. The FAA does not agree that analytic methods are reliable for this purpose. (See discussion of Proposal 6-47.)

Proposal 6-47. Proposed § 25.237(a)(1) would establish 25 knots as the minimum cross wind component for landplanes, to be demonstrated on dry runways. Several commentators objected to the use of 25 knots for the required minimum wind velocity. For reasons explained in the discussion of Proposal 6-46, proposed §§ 25.237(a) and (b) are revised, consistent with § 25.233 as adopted, by replacing "25 knots" with "20 knots or 0.2 V_{s0}, whichever is greater, except that it need not exceed 25 knots."

Proposed § 25.237(a)(2) would require that a safe cross wind component be established for wet runways, but would allow this to be determined by analysis in lieu of demonstration. Two commentators recommended that the proposal concerning wet runways be deleted, since there is no definition of "wet," and they considered the current rules for cross wind operation to be adequate for either wet or dry cases. Two other commentators doubted the validity of analytic methods for establishing a safe cross wind component for wet runways. In light of the comments received, and after further review, the FAA believes that proposed § 25.237(a)(2) is premature and it is withdrawn.

Proposal 6-48. Two commentators recommended that proposed § 25.251(e) be revised to prescribe an acceleration of ±0.1 g, instead of ±0.05 g, in defining the onset of buffet. One of the commentators stated that this change would ensure a level of buffet that would be distinguishable under turbulent air conditions. The commentator stated that contrary to the explanation in the notice, test pilots have signified the onset of buffet when the buffet level at a flight station was greater than ±0.1 g, and that defining buffet onset in § 25.251(e) as ±0.05 g would unnecessarily limit the altitude-payload capability of the airplane. After considering the comments received, and after further review, the FAA does not believe it has enough information at this time to specify an acceleration value for the onset of perceptible buffeting which would be applicable to all airplanes. Accordingly, the proposal is withdrawn.

Proposal 6-49. Proposed new § 25.255 would establish requirements for maneuvering and dive recovery characteristics with the airplane out of trim by the amount resulting from a three-second movement of the primary longitudinal trim system at its normal rate with no aerodynamic load, or the maximum mistrim that can be sustained by the autopilot while maintaining level flight in the high speed cruising condition, whichever is greater. One commentator said that the requirement would appear not to apply to a manual trim system, and that this should be made clear. The intent of the proposal is to provide a basic maneuvering stability and dive recovery requirement regardless of the type of trim system used in the airplane.

To make this intent clear, the first sentence of the lead-in of proposed § 25.255 is revised by inserting the parenthetic "(or an equivalent degree of trim for airplanes that do not have a power operated trim system)". In addition, current § 25.655(b) requires that if an adjustable stabilizer is used, it must have stops that will limit the range of travel to the maximum for which the airplane is shown to meet the trim requirements of § 25.161. Therefore, the first sentence of the lead-in of proposed § 25.255 is also revised by inserting an exception indicating that the trim movement need not exceed the range established by stops in the trim system, including those required by § 25.655(b) for adjustable stabilizers. It should be noted that the word "primary" in the first sentence of the lead-in of proposed § 25.255 is being deleted since its usage in this context is inappropriate. The same commentator also said that he does not understand the phrase relating to the autopilot, but believes there is a need for an analysis to show whether greater mistrim can result from autopilot or other system malfunction, or from normal autopilot functioning such as when flying on altitude hold through updrafts. The phrase in the proposal relating to autopilots is intended to provide for circumstances in which the trim system is actuated, either by a runaway or by the pilot, while the autopilot is engaged, and the autopilot is then disengaged when the degree of mistrim reaches the point where the autopilot can no longer hold level flight. The FAA believes that this is an appropriate test criterion. In addition, it should be noted that autopilot malfunctions are covered under § 25.1329.

One commentator recommended that the proposed wording "at its normal rate with no aerodynamic load" in the lead-in of proposed § 25.255 be replaced by "at the rate existing for the specified flight condition." The FAA agrees that where the trim system is designed to vary the rate of trim movement according to the flight condition (e.g., as a function of the dynamic pressure), this variation may be taken into account; however, the effects of aerodynamic loads on trim movement may vary in a complex manner, e.g., with center of gravity, airspeed, and system friction. As stated in the notice, the proposal is intended to simulate a typical out-of-trim condition. The FAA believes that the requirement should be specified so that the required trim change can be determined by a relatively simple and uniform procedure. Accordingly, § 25.255 as adopted is revised to specify a three-second movement of the trim system at the normal rate for the particular flight condition with no aerodynamic load.

One commentator recommended that § 25.255(a) be changed to read: "The slope of the stick force vs. g (curve) for load factors between −1g and +2.5g must be positive at speeds up to V_{FC}/M_{FC} or aural warning (speed) except that a 'flattening' of the stick force gradient or a reduction in stick force is permissible if it does not result in the tendency to overcontrol. Lesser acceleration values may be used at altitudes where buffet envelopes are established in accordance with § 25.251(e)." The FAA disagrees with the recommendation. Current § 25.253(b) already allows M_{FC} to be the same as the Mach number at which effective speed warning occurs for altitudes where Mach number is the limiting factor. At lower altitudes where airspeed is the limiting factor, V_{FC} under § 25.253(b) must be higher than the aural warning speed under § 25.1303(c)(1). Recoveries from severe upsets or evasive maneuvers are likely to be made in this altitude range at speeds above the aural warning speed. Threfore, the FAA believes that the proposed requirement should be met at speeds up to V_{FC}/M_{FC}. In addition, to minimize the possibility of over-control and over-stressing the airplane structure, the FAA believes that a reduction in stick force (negative slope of the stick force per g curve) should not be allowed at speeds up to V_{FC}/M_{FC}. However, it should be noted that flattening of the stick force gradient would be allowed under the proposal as long as the slope is positive.

The changes to proposed § 25.255(a) recommended by this commentator include deleting the proposed requirement for the speed range between V_{FC}/M_{FC} and V_{DF}/M_{DF} (the demonstrated flight dive speed). For this speed range, the proposal states that there may not be reversal of the primary longitudinal control force. Speeds above V_{FC}/M_{FC} have been reached during recovery from upsets in severe turbulence. The FAA believes that reversal of the direction of the control force (as shown on the stick force per g diagram) should not be allowed at speeds up to V_{DF}/M_{DF}, because force reversal on the primary control could be confusing to the pilots and contribute to hazardous over-control in severe turbulence.

Proposed § 25.255(a) provides that acceleration values less than those prescribed may be used at altitudes and speeds where buffet envelopes are established in accordance with § 25.251(e). One commentator objected to this provision and suggested that the proposal be revised to state that, at speeds up to V_{FC}/M_{FC}, the stick force curve must have a positive slope, and at speeds up to V_{DF}/M_{DF} there may not be a reversal of the primary longitudinal control force for normal acceleration values between −1 g and the lesser of 2.5 g and a normal acceleration corresponding, in the particular circumstances of weight, altitude, and air speed or Mach number, to buffeting or other phenomena, of such intensity as to be a strong deterrent to further application of primary longitudinal control force. The FAA does not believe that the buffeting criteria suggested by the commentator would be appropriate, since severe buffeting could mask the normal stick force gradient characteristics.

Another commentator suggested that the proposal be revised to state that "where buffet envelopes are established in accordance with § 25.251(e), the corresponding lesser acceleration values may be used." The FAA disagrees with the recommendation. The suggested wording would indicate that the requirement for positive maneuvering stability (stick force per g) is limited to the load factors within the buffet onset envelopes (i.e., perceptible buffeting) determined under § 25.251(e). However, § 25.251(e) also requires that probable inadvertent excursions beyond the boundaries of the buffet onset envelopes may not result in unsafe conditions. The FAA believes that positive maneuvering stability should be required for inadvertent excursions beyond the buffet onset boundaries, since a pilot is likely to exceed these boundaries in recovering from an upset.

Accordingly, § 25.255 is clarified by deleting the specific acceleration (g) values and exception clause in paragraph (a), and by setting forth a revised exception clause in a paragraph (e) which states that the accelerations need not exceed the maneuvering load factors associated with probable inadvertent excursions beyond the boundaries of the buffet onset envelopes determined under § 25.251(e). For consistency with the structural strength requirements, § 25.255(e) as adopted also states that the accelerations need not exceed the limit maneuvering load factors prescribed in §§ 25.333(b) and 25.337.

In addition, the other paragraphs of proposed § 25.255 have been restructured and redesignated for clarity. The second sentence of proposed § 25.255(d) would provide for the use of longitudinal trim to assist in producing the required 1.5 g for recovery. One commentator suggested that a clause be inserted to require that it be possible to produce at least 1.2 g without use of the longitudinal trim system and without exceeding a longitudinal control force of 125 lbs. The FAA believes that the recommended change is unnecessary because proposed § 25.255(d) already provides that longitudinal trim can only be used to assist in producing 1.5 g if it meets certain requirements.

Proposed § 25.255(d) requires that if the longitudinal trim is used to assist in the dive recovery, it must be shown that the trim can be actuated in the nose up direction with the primary surface (e.g., elevators) loaded to produce the least of the nose up control forces specified in paragraphs (d)(1), (d)(2), and (d)(3). One commentator recommended that proposed paragraph (d)(1) be deleted and that paragraph (d)(2) be changed to "125 pounds." The FAA does not agree. In an upset, the initial attempt at recovery is likely to be made with the primary pitch control, and on some airplane designs the airloads on the horizontal tail surfaces tend to prevent movement of the trim system at high speeds. The change recommended by the commentator assumes, in effect, that the pilots will actuate the trim in time to obtain recovery before they apply more than 125 pounds on the primary control. This may not be a valid assumption in extreme upset conditions.

One commentator stated that it is impracticable to demonstrate 1.5 g, and less than 1 g, at V_{DF}/M_{DF} in a flight test without exceeding V_{DF}/M_{DF}, and that some alleviation should be provided to cover this. Proposed § 25.255(d), which states that it must be possible from an overspeed condition at V_{DF}/M_{DF} to produce at least 1.5 g for recovery by applying not more than 125 pounds of control force, would only require that the test be started at V_{DF}/M_{DF}. With regard to accelerations less than 1 g, the commentator has apparently misinterpreted the requirement of proposed § 25.255(f). The intent of the requirement in proposed § 25.255(f) is that the entry speeds for flight test investigations at acceleration values less than 1 g should be limited to the extent necessary to accomplish a recovery without exceeding V_{DF}/M_{DF}. To clarify this intent, proposed § 25.255(f) is revised and incorporated into § 25.255(e).

Another commentator recommended certain changes in the arrangement of paragraphs in § 25.255 along with other changes already discussed above. The FAA believes, however, that the paragraphs of proposed § 25.255, as revised, are in the most appropriate order for clarity.

One commentator stated that proposed § 25.255 should be changed to be consistent with the manner in which the out-of-trim special condition has been applied in certification tests since 1965. The wording of the special conditions for various airplanes, and of related regulations §§ 25.251 and 25.253, has changed between 1965 and the present time. The proposal in the notice is based on the wording of recent special conditions.

Proposal 6–50. Proposed § 25.703 would require a takeoff warning system to warn the pilots during the initial portion of the takeoff roll if the airplane is in a configuration that would prevent successful completion of the takeoff. One commentator recommended that the proposed requirement for both aural and visual warnings be changed to require either an aural or visual warning. Another commentator questioned the desirability of a visual warning, particularly at night, citing the time that may be lost in searching for a visual warning. The FAA agrees with the latter comment. Accordingly, the requirement for an aural warning is retained and the requirement for a visual warning is withdrawn.

One commentator recommended that the words "including any of the following" (configurations) in proposed § 25.703(a) be changed to "consisting of the following" (configurations). The FAA does not agree since a particular airplane design may incorporate some other variable geometry device that would not allow a safe takeoff when in the wrong position.

The same commentator stated that proposed § 25.703(c), which would require that the means used to activate the system function properly throughout the ranges of takeoff weights, altitudes, and temperatures for which certification is requested, is superfluous and should be deleted. The FAA believes that this paragraph should be retained to clearly define the scope of the requirements.

This commentator also recommended deletion of proposed § 25.703(d) which would require that the system be designed to provide reliable sensing of an unsafe position of each critical aerodynamic surface. The commentator stated that such a system would be unworkable, over-sophisticated, and could degrade flight safety through numerous nuisance warnings. He pointed out that critical aerodynamic surfaces would include ailerons, rudder, and spoilers, and that "proper" position of such surfaces during takeoff would be affected by cross winds, engine failure, etc. The FAA agrees that the requirements in proposed § 25.703(d) could result in a warning system so complex that its effectiveness may be impaired. Proposed paragraph (d) is therefore withdrawn.

In regard to proposed § 25.703(b), one commentator recommended that consideration be given to a system cutoff at some significant airspeed, e.g., 100 knots. It was stated that any valid warning would probably have sounded by the time that speed is reached and the cutoff would preclude unwarranted aborts due to warning system malfunction at high speeds. Proposed § 25.703(b) would require the warning to continue until the configuration is changed to allow a safe takeoff, the takeoff roll is terminated, or the warning is manually deactivated by the pilot. The FAA agrees that a system cutoff at high speeds should be permitted, but believes that the cutoff should not be set below the V_1 speed, since the takeoff can be rejected within the established accelerate-stop distance from any speed up to V_1. Since the next speed above V_1 that can be sensed by a simple means is V_R (e.g., by nose gear switches), the FAA believes that deactivation of the takeoff warning system should be allowed when the airplane is rotated for takeoff. Proposed § 25.703 is revised accordingly.

With respect to the requirement in proposed § 25.703(b) that the warning must continue until the takeoff roll is terminated, the intention of the proposal was not to require that the warning must continue until the airplane is brought to a full stop, but that it must continue until action is taken by the pilot to terminate the takeoff roll, for example by closing all throttles. Proposed § 25.703(b) is revised accordingly.

Another commentator objected to the proposal, stating that the warning system would eliminate reliance on the checklist and induce more hazards than it is designed to eliminate. The FAA does not agree that the warning system would eliminate reliance on the checklist; instead it would serve as a back-up for the checklist, particularly in unusual situations, e.g., where the checklist is interrupted or the takeoff is delayed. The commentator stated that the additional aural warning system would add to the problem of cockpit confusion caused by the multitude of aural warning requirements. The FAA does not agree since the takeoff warning would occur during the initial portion of the takeoff roll and therefore should not be confused with flight over-speed warning, stall warning, or landing gear warning during approach. The commentator added that it is doubtful if a reliable, practical, safe system can be designed, much less for a cost that would approximate the possible benefits. The FAA does not agree since such systems have been developed and used on relatively complex airplanes. The warning systems can be simpler on airplanes having fewer or less critical variable geometry devices.

One commentator recommended that consideration be given to including unreleased brakes in the takeoff warning system in view of the serious consequences of failing to release brakes fully before takeoff. The FAA does not now have sufficient information to justify adopting the suggestion made by this commentator.

The proposed new § 25.703 is adopted with the revisions discussed above and a nonsubstantive revision for clarity.

Proposal 6-51. One commentator suggested the use of the word "suspended" rather that "silenced" in proposed § 25.729(e)(3). The FAA agrees with this suggestion, since it would result in consistency of wording between this section and proposed § 23.729(f)(1). Section 25.729(e)(3) is revised accordingly.

Proposal 6-52. For comments related to the proposal to revise § 25.1043(b), see Proposal 6-23.

Proposal 6-53. No unfavorable comments were received on the proposal to revise § 25.1501. Accordingly, the proposal is adopted without substantive change.

Proposal 6-54. For comments related to the proposal to revise § 25.1521(e), see Proposal 6-23.

Proposals 6-55 and 2-96. One commentator recommended that proposed § 25.1581(a)(2), which would require that the Airplane Flight Manual contain "Other information necessary for safety," be deleted. He stated that the proposed requirement would be far too broad, and could include all information now provided in the crew operating manual. The FAA agrees that the proposed wording may be too broad, but does not agree that all requirements for additional information should be eliminated. Section 25.1581(a)(2) as adopted requires other information that is necessary for safe operation because of design, operating, or handling characteristics. This wording is the same as current § 25.1581(c), except that the word "unusual" is deleted for the reasons stated in notice.

The same commentator also recommended deletion of proposed § 25.1581(b), which would require that each part of the manual containing required information be approved, segregated, identified, and clearly distinguished from each unapproved part of the manual. The commentator stated that he is not aware of any unapproved sections of the Airplane Flight Manual, and that the proposal implies a crew manual with the FAA limitation data so marked. The FAA does not agree with the recommended deletion of this requirement. The proposed paragraph is the same as current § 25.1581(b), and is intended to cover cases where the applicant desires to include information in the manual that is not required by the FAA.

Proposal 6-55 to amend § 25.1581 is adopted with the revisions discussed above.

The disposition of Proposal 2-96, which proposed to add a new § 25.1581(d) (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-55. No unfavorable comments were received on Proposal 2-96 and the proposal to add a new § 25.1581(d) is adopted without substantive change.

Proposal 6-56. For comments related to the proposal to amend § 25.1583, see Proposal 6-23.

Proposals 6-57 and 2-87. No unfavorable comments were received on the proposal to amend § 25.1585. Accordingly, the proposal is adopted without substantive change.

Disposition of Proposal 2-87 to amend § 25.1353 (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-57. Proposals 2-39, 2-131, and

2-136 to amend §§ 23.1353, 27.1353, and 29.1353, respectively (Notice 75-10), are substantively identical to Proposal 2-87 and all of these proposals are discussed below.

Commentators suggested that proposed §§ 25.1353(c)(5) and 29.1353(c)(5) be revised by adding the word "or" between paragraphs (c)(5)(i) and (c)(5)(ii) to allow an alternative design. The commentators misinterpreted the proposal. The sections as adopted provide for three alternatives with an "or" between paragraphs (c)(5)(ii) and (c)(5)(iii) and with an "or" understood between paragraphs (c)(5)(i) and (c)(5)(ii).

One commentator suggested that the proposals should be broadened to include nickel cadmium battery installations other than those capable of being used to start an engine or an auxiliary power unit. The proposals apply only to nickel cadmium batteries that are subject to a rapid drain because they are used to start an engine or auxiliary power unit. The FAA does not have enough information to indicate that in other installations the drain on nickel cadmium batteries is sufficiently rapid to require compliance with the proposed provisions.

One commentator objected to proposed §§ 27.1353(f) and 29.1353(c)(5) on the basis that the requirement should be limited to nickel cadmium batteries other than 20-cell batteries and to only certain battery locations. The commentator also stated that the requirement for helicopters should be different from that for airplanes since helicopters are able to execute an emergency landing much quicker than airplanes. The FAA has insufficient information at the present time to warrant any of the distinctions suggested by the commentator.

The FAA believes that the requirement in proposed § 25.1353(c)(5) concerning operating procedures in the Airplane Flight Manual should be transferred to § 25.1585(a), since that section pertains to operating procedures. The proposal for § 25.1353(c)(5) is revised and § 25.1585(a) amended accordingly. The remainder of proposed § 25.1353 (c)(5) is redesignated § 25.1353(c)(6) in view of the adoption of a new § 25.1353(c)(5) in Amendment No. 5. The same revisions are also made to proposed §§ 23.1353(f), 27.1353(f), and 29.1353(c)(5), designated as §§ 23.1353(g), 27.1353(g), and 29.1353(c)(6), respectively, and to §§ 23.1585, 27.1585, and 29.1585.

Proposals 6-58 and 2-98. Proposed §§ 25.1587(c)(5) and (c)(6), which would add requirements for information on the vertical distance for transition to approach climb determined under proposed § 25.121(e) (Proposal 6-38), and on the en route net flight path data determined under proposed § 25.123 (Proposal 6-39), are withdrawn in view of the withdrawal of Proposals 6-38 and 6-39.

Disposition of Proposal 2-98 to revise § 25.1587 (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-58. No unfavorable comments were received on Proposal 2-98 and it is adopted as proposed except that the reference in proposed § 25.1587(b)(4) to § 25.101(c) is changed to reference §§ 25.101(f), (g), and (h). Current § 25.1587(c)(3), on which proposed § 25.1587(b)(4) is based, was adopted as part of the recodification of Part 4b of the Civil Air Regulations, effective February 1, 1965 (29 FR 18289). Specifically, § 25.1587 replaced § 4b.743 of the CARs and § 4T.743 of Special Civil Air Regulation 422B. Section 4T.743(c), which was replaced by § 25.1587 (c)(3), referenced § 4T.111(c) and the requirements of § 4T.111(c) are now contained in §§ 25.101(f), (g), and (h), not § 25.101(c) as the current rule indicates. The purpose of the recodification program was simply to clarify the regulations. No substantive changes, other than relaxatory ones that were completely noncontroversial, were intended. The FAA believes that the change being made is a nonsubstantive editorial change since § 25.1587(c)(3) has been consistently interpreted in accordance with the rule as originally set forth in § 4T.743(c) of Special Civil Air Regulation 422B.

Proposal 6-59. For comments related to the proposal to amend § 27.25(b), see Proposal 6-5. The proposal to amend § 27.25(b) is adopted without substantive change.

Proposal 6-60. For comments related to the proposal to amend § 27.29, see Proposal 6-5.

Proposal 6-61. Proposed new §§ 27.33(e) and 29.33(e) (Proposal 6-77) would require a main rotor low-speed warning for each single engine helicopter and each multiengine helicopter that does not have an approved device that automatically increases power on the operating engines when one engine fails. Several commentators stated that operating experience does not indicate the need for a main rotor low-speed warning and that the instruments furnished the pilot are adequate to monitor rotor r.p.m. safely. One of these commentators also stated that if the warning is set high enough to be effective, the pilot will rely on it in lieu of monitoring rotor r.p.m. as he should and that the warning will activate during low r.p.m. transients which are entirely safe and this may cause pilot action that is unsafe. The commentator stated that since the National Transportation Safety Board (NTSB) has recommended an engine failure warning device on all turbine engines, this proposal should be withdrawn or deferred until action has been taken on the NTSB recommendations. The FAA does not agree. In regard to the comments concerning monitoring of instruments and rotor r.p.m. by the pilot, it should be noted that one of the main reasons for providing rotor low-speed warning is to assist the pilot in maintaining safe rotor speed after an engine failure when his attention is directed to flight path control and emergency procedures. With respect to activation of the warning during low-rotor r.p.m. transients, the FAA believes that the warning can be set to avoid nuisance warnings in normal maneuvers and still meet the requirements of this section. The NTSB Release for Safety Recommendations A-75-72 and 73, issued September 2, 1975, recommended that Parts 27 and 29 be amended to require that all turbine engine-powered helicopters be equipped with a prominent engine-out visual warning system and an aural warning system which can be heard with or without the use of a headset. The FAA believes, as stated in its response to the NTSB, that the proposed requirement for rotor low-speed warning is more desirable than an engine-out warning since a rotor low-speed warning would warn the pilot of an unsafe low rotor speed due to any cause, including engine failure, and will continue the warning function during power-off descent and landing.

One commentator noted that the FAA has imposed special conditions requiring engine-out warnings on certain turbine engine-powered helicopters, and stated that engine-out warnings should not be required in addition to rotor low-speed warning. The FAA does not believe it will be necessary to issue a special condition requiring installation of an engine-out warning on those helicopters with a rotor low-speed warning.

One commentator objected to the deletion of §§ 27.33(b)(3) and 29.33(b)(3). Current §§ 27.33(b)(1), (b)(2), and (b)(3) (and §§ 29.33(b)(1), (b)(2), (b)(3)) provide, for all rotorcraft, three alternative methods for showing that main rotor speeds substantially less than the minimum approved main rotor speed will not occur under any sustained flight condition with power on. One of the alternatives, paragraph (b)(3), is to provide adequate means to warn the pilot of unsafe main rotor speeds, but the proposal would delete this paragraph, thus requiring all rotorcraft to comply with paragraph (b)(1) or (b)(2). This was not the intent of the proposal. Accordingly, §§ 27.33(b)(3) and 29.33(b)(3) are retained. In addition, for clarification, the lead-in of §§ 27.33(b) and 29.33(b) are revised so that they are only applicable to rotorcraft that are not required to have a main rotor low-speed warning under § 27.33(e) or § 29.33(e), respectively.

Proposal 6-62. Two commentators objected to the proposals for §§ 27.45 and 29.45, stating that the basis for humidity levels has not been determined and varies between engines. These commentators further stated that there is no industry agreement on the effect of humidity on power or that humidity has a significant effect on power. The effects of humidity on the power of reciprocating engines are well understood and are generally the same between engine types. The effects of humidity on the power or thrust of turbine engines may differ between engine types. The proposal, however, establishes a reference humidity structure for the development of rotorcraft performance data. It does not prejudge the nature of the corrections, if any, which may be required. Each turbine engine must be evaluated to determine the effect of humidity on thrust or power, and, where rotorcraft performance is affected, it must be based on the humidity reference condition.

One commentator objected to the proposals on the basis that the humidity reference for turbine engine-powered rotorcraft may not be representative of average humidity conditions encountered in service. No safety problem has been identified with the use of the proposed humidity reference in the type certification of transport category airplanes, and the reference is considered equally valid for the type certification of rotorcraft.

One commentator questioned why a reciprocating engine-powered rotorcraft would be required to use a humidity correction different from that for turbine engine-powered rotorcraft. The humidity correction proposed for reciprocating engine-powered rotorcraft is similar to the current requirements for reciprocating engine-powered transport category airplanes and the proposed humidity correction for turbine engine-powered rotorcraft is similar to the current requirements for turbine engine-powered transport category airplanes, and the requirements for transport category airplanes have been administered without difficulty. In addition, the humidity correction requirements for turbine engine-powered rotorcraft are based on the fact that the power or thrust of turbine engines diminishes significantly as the ambient atmospheric temperature is increased. Power or thrust variations related to humidity could therefore have an adverse effect upon safety at temperatures above standard.

The proposal to revise § 27.45 and the proposal to amend § 29.45 are adopted without substantive change.

Proposals 6–63 and 2–100. Under proposed § 27.65(b)(2), if the never-exceed speed V_{NE} is less than the best rate-of-climb speed V_Y at any altitude within the range for which certification is requested, the steady rate of climb must be determined over the entire range of weights, temperatures, and altitudes for which certification is requested. One commentator recommended that the rate of climb information be required only for the range of altitudes where V_{NE} is less than V_Y, instead of the entire range of altitudes. The FAA disagrees. The climb performance and speed of a helicopter may change significantly below, as well as above, the altitude at which V_{NE} is less than V_Y. However, after further review, the FAA believes that it is only necessary that climb data be determined over the range of altitudes from 2,000 feet below the altitude at which V_{NE} is equal to V_Y up to the maximum altitude for which certification is requested. The proposal to amend § 27.65 is revised accordingly.

In addition, proposed § 27.65(b)(2)(i) is revised to allow the rate-of-climb to be determined at the climb speed selected by the applicant (instead of the most favorable climb speed) at or below V_{NE}. The FAA believes that the proposed paragraph (b)(2)(i) would impose an unnecessary burden on the applicant and result in complex operating information, since the most favorable climb speed may be a function of several variables.

Disposition of Proposal 2–100 to amend § 27.65(a)(2) (Notice 75–10) was deferred so that it could be considered in connection with Proposal 6–63. No unfavorable comments were received on the proposal to amend § 27.65(a)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 6–64. Proposed § 27.67(c) would require the determination of the one-engine-inoperative steady rate of climb with maximum continuous power on the operating engines, and (for helicopters for which certification for the use of 30-minute power is requested) at 30-minute power. One commentator said that there is no need to show the climb performance data for both the maximum continuous and 30-minute power levels and, therefore, the word "and" preceding the parenthetical expression should be changed to "or". The FAA does not agree. Even though an applicant may request certification for the use of 30-minute power, climb performance data for maximum continuous power should be furnished to the pilot for use in operations that may require more than 30 minutes to reach a safe landing area after failure of one engine, e.g., over-water operations. Accordingly, § 27.67(c) is adopted without substantive change.

Proposal 6–65. No unfavorable comments were received on the proposal to revise § 27.75(a)(2)(ii). Accordingly, the proposal is adopted without substantive change.

Proposal 6–66. No unfavorable comments were received on the proposal to amend § 27.143. Accordingly, the proposal is adopted without substantive change.

Proposal 6–67. No unfavorable comments were received on the proposal to revise § 27.175(c). Accordingly, the proposal is adopted without substantive change.

Proposal 6–68. For comments related to the proposal to revise § 27.1043(b), see Proposal 6–23.

In addition, a nonsubstantive editorial change is being made to the lead-in of § 27.1043 (a) to reference § 27.1041(b) instead of § 27.104(b).

Proposal 6–69. No unfavorable comments were received on the proposal to revise § 27.1501. Accordingly, the proposal is adopted without substantive change.

Proposals 6-70 and 2-135. Disposition of Proposal 2-135 to amend § 27.1545 (Notice 75-10) was deferred so it could be considered in connection with Proposal 6-70 to amend § 27.1505. No unfavorable comment was received on Proposal 2-135. Accordingly, the proposal is adopted without substantive change.

Proposed §§ 27.1505(c) and 29.1505(c) (Proposals 6-70 and 6-84, respectively) would allow the establishment of a never-exceed speed, V_{NE} (power-off), that is less than V_{NE} with power on, if V_{NE} (power-off) is not less than a speed midway between the power-on V_{NE} and the speed for maximum range in autorotation at maximum weight. One commentator recommended that "V_Y or the climb speed selected by the applicant in demonstrating compliance with the climb requirements" be inserted in proposed § 27.1505(c) in place of the speed for maximum range in autorotation. The commentator stated that since determination of the speed for maximum range in autorotation is not presently required, the substitution of the climb speed (which is determined under the climb requirements in §§ 27.65 or 27.67) would accomplish the intent of placing a lower limit on V_{NE} (power-off) without unnecessary additional demonstration requirements.

After further consideration, the FAA believes that the speed used in determining climb performance (one-engine-inoperative climb performance, if applicable) should be used in establishing a V_{NE} (power-off) for both Part 27 and 29 helicopters, instead of the speed for maximum range in autorotation at maximum weight. The speed midway between power-on V_{NE} and the appropriate climb speed is expected to be high enough to provide the pilot with an adequate range of speeds and glide angles during autorotation. In addition, the determination of V_{NE} (power-off) will be based on information already required to be furnished by the applicant which would not be the case if the speed for maximum range in autorotation were prescribed since it is only required to be determined for certain Part 29 Category B helicopters. The proposals to amend §§ 27.1505 and 29.1505 are revised accordingly.

Proposal 6-71. For comments related to the proposal to add a new § 27.1521(f), see Proposal 6-23.

Proposal 6-72. No unfavorable comments were received on the proposal to add a new § 27.1527. Accordingly, the proposal is adopted without substantive change.

[For discussion concerning the amendment of § 27.1545, see Proposals 6-70 and 2-135.]

Proposals 6-73, 2-139 and 2-140. No unfavorable comments were received on Proposal 6-73 to amend § 27.1581. The proposal is adopted without substantive change, except that proposed § 27.1581(a)(2) is revised in accordance with the discussion of the proposal to amend § 25.1581 (Proposal 6-55).

Disposition of Proposals 2-139 to amend § 27.1581 and 2-140 to amend § 27.1587 was deferred so that these proposals could be considered in connection with Proposal 6-73. No unfavorable comments were received on Proposal 2-139 or Proposal 2-140. Proposal 2-139 to amend § 27.1581 is adopted without substantive change. For reasons that are stated in the discussion of Proposal 6-23 for § 23.1521(e), Proposal 2-140 to amend § 27.1587 is revised by adding a new § 27.1587(a)(2)(iii) requiring information on the maximum ambient atmospheric temperature at which compliance with the cooling requirements was shown. Additionally, the parenthetical phrase "(if provided)" is deleted from § 27.1587(b) since the amendment to § 27.1581 requires that a Rotorcraft Flight Manual be furnished for each rotorcraft. The proposal to amend § 27.1587 is adopted with the changes discussed above.

Proposal 6-74. For comments related to the proposal to amend § 27.1583, see Proposal 6-23.

Proposals 6-75 and 2-131. Proposed §§ 27.1585(c) and 29.1585(c) would require the operating procedures section of the Rotorcraft Flight Manual to contain information on the procedures for reducing airspeed to V_{NE} (power-off) for helicopters for which a V_{NE} (power-off) is established under §§ 27.1505(c) and 29.1501(c), respectively. One commentator stated that he did not favor systematically placing explicit engine, altitude, and V_{NE} (power-off) limitations in the "limitations" chapter of the Flight Manual. The commentator apparently misinterpreted the proposal, as it would affect only the operating procedures section, not the limitations section. The commentator also stated that these explanations should only be required when they bring significant information to the pilot and when the limitation results from an indirect and not an obvious cause. The

FAA believes that in view of the surprise element that may be associated with engine failure in service operations, the procedure for reducing airspeed to not more than V_{NE} (power-off) should be furnished for each helicopter for which a V_{NE} (power-off) is established. Accordingly, the proposals for §§ 27.1585(c) and 29.1585(c) are adopted without substantive change.

Disposition of Proposal 2-131 to amend § 27.1353 (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-73. For comments related to proposed § 27.1353(f) and for an explanation of the revision to proposed § 27.1353(f), see the discussion of Proposal 2-87 under Proposal 6-57.

Proposal 6-76. For comments related to the proposal to amend § 29.29, see Proposal 6-5.

Proposal 6-77. For comments related to the proposed amendment of § 29.33, see Proposal 6-61 for § 27.33.

Proposal 6-78. For comments related to proposed § 29.45, see Proposal 6-62.

Proposal 6-79. One commentator recommended that proposed § 29.65(c) be revised to require climb data only for those altitudes where V_{NE} is less than V_y at sea level. For a discussion of this comment and the explanation for the revisions to proposed § 29.65(c), see Proposal 6-63. This commentator also stated that proposed § 29.65(c) is superfluous for Category B rotorcraft since it duplicates the requirement of proposed § 29.65(a)(4). The FAA agrees that some clarification is needed and proposed § 29.65(a) and (c) are revised to list all of the Category B requirements in paragraph (a) and to make paragraph (c) applicable only to Category A helicopters. For an explanation of the revisions to proposed § 29.65(c)(1), see the discussion of the revision to proposed § 27.65(b)(2)(i) under Proposal 6-63. Accordingly, the proposal is adopted with the revisions discussed above and under Proposal 6-63.

Proposal 6-80. No unfavorable comments were received on the proposal to amend § 29.143. Accordingly, the proposal is adopted without substantive change.

Proposal 6-81. No unfavorable comments were received on the proposal to revise § 29.175(c). Accordingly, the proposal is adopted without substantive change.

Proposal 6-82. For comments related to the proposal to revise § 29.1043(b), see Proposal 6-23.

Proposal 6-83. No unfavorable comments were received on the proposal to revise § 29.1501. Accordingly, the proposal is adopted without substantive change.

Proposals 6-84 and 2-188. For comments related to Proposal 6-84 to amend § 29.1505, and for an explanation of the revisions to proposed § 29.1505(c), see Proposal 6-70.

Disposition of Proposal 2-188 to amend § 29.1545 (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-84 to amend § 29.1505. No unfavorable comments were received on Proposal 2-188. Accordingly, the proposal is adopted without substantive change.

Proposal 6-85. For comments related to the proposal to revise § 29.1521(e), see Proposal 6-23.

Proposal 6-86. No unfavorable comments were received on the proposal to add a new § 29.1527. Accordingly, the proposal is adopted without substantive change.
[For discussion concerning the amendment of § 29.1545, see Proposals 6-84 and 2-188.]

Proposals 6-87 and 2-192. Proposal 6-87 proposed to revise § 29.1581(a) and (b) and to delete § 29.1581(c) and mark it "[Reserved]." Disposition of Proposal 2-192 to add a new § 29.1581(d) (Notice 75-10) was deferred so that it could be considered in connection with Proposal 6-87.

No unfavorable comment was received on Proposals 6-87 or 2-192. These proposals to amend § 29.1581 are adopted without substantive change except that proposed § 29.1581(a)(2) is revised in accordance with the discussion of the proposal to amend § 25.1581 (Proposal 6-55).

Proposal 6-88. For comments related to the proposal to amend § 29.1583, see Proposal 6-23.

Proposals 6-89 and 2-186. For comments related to Proposal 6-89 to add a new § 29.1585(c), see Proposal 6-75.

Disposition of Proposal 2–186 to amend § 29.1353 (Notice 75–10) was deferred so that it could be considered in connection with Proposal 6–89. For comments related to proposed § 29.1353(c), see the discussion of Proposal 2–87 under Proposal 6–57.

Proposal 6–90. No unfavorable comments were received on the proposal to amend § 91.31. Accordingly, the proposal to amend § 91.31 is adopted without substantive change.

Proposal 6–91. The proposal to amend § 91.37 was made to implement Proposals 2–49, 2–51, 2–52, and 2–93 to amend §§ 25.105, 25.125, 25.241 and 25.1533, respectively, contained in Airworthiness Review Notice No. 2 (Notice 75–10). Since the proposed amendments to Part 25 have been withdrawn (41 FR 55454), Proposal 6–91 is also withdrawn.

Proposal 6–92. Proposed § 121.141(b) would authorize an air carrier to revise the operating procedures and the format of the performance data for the applicable Airplane or Rotorcraft Flight Manual and include the revised information in the operator's manual required by § 121.133, if the revised procedures and performance data presentation are approved by the Administrator and are clearly identified as flight manual requirements. One commentator said that there was no need for the identification of the flight manual material. This requirement is in the current rule and the FAA does not have sufficient information at the present time to justify deleting it, especially with regard to the operating limitations.

The commentator also suggested that the second sentence of proposed § 121.141(b) would be clarified by inserting a clause indicating that if the certificate holder elects to carry the manual required by § 121.133, he must retain all of the limitations section (of the flight manual) as written, unless deviations are specifically authorized by the Administrator. The FAA does not believe that the suggested change is necessary or appropriate. Proposed § 121.141(b) would not authorize a change in the substance or presentation of the operating limitations required for the applicable flight manual. Accordingly, the proposal to revise § 121.141(b) is adopted without substantive change.

DRAFTING INFORMATION

The principal authors of this document are Paul C. Spiess and Charles J. Maple, Flight Standards Service, and Keith S. May, Office of the Chief Counsel.

ADOPTION OF THE AMENDMENT

Accordingly, Parts 1, 21, 23, 25, 27, 29, 91, and 121 of the Federal Aviation Regulations are amended, effective March 1, 1978.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE.—The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A–107.

Amendment 91-146

Aircraft Registration Eligibility Identification and Activity

Adopted: January 25, 1978 **Effective: January 30, 1978**

(Published in 43 FR 3900, January 30, 1978)

SUMMARY: The purpose of these amendments is to delete the requirement in the Federal Aviation Regulations that each holder of a certificate of aircraft registration file an annual report on the current eligibility of the aircraft for registration, and to discontinue the request for voluntary annual reports providing other information about the aircraft and its activity. The FAA has determined that there is no current need for these annual reports. These amendments are intended to relieve the public of this burden.

FOR FURTHER INFORMATION CONTACT:

Virginia Swimmer, Technical Section, FAA Aircraft Registry, Aeronautical Center, P.O. Box 25082, Oklahoma City, Oklahoma 73125; telephone (405) 686-2284.

SUPPLEMENTARY INFORMATION:

Section 47.44 of the Federal Aviation Regulations (14 CFR 47.44) presently requires the holder of a Certificate of Aircraft Registration to submit a report by April 1 of each year, providing information pertinent to the aircraft's continuing eligibility for registration. [illegible] report, made on Part 1 of AC Form 8050-73 (Aircraft Registration Eligibility Identification, and Activity Report), must state: (1) the name and address of the owner; (2) whether he is a United States citizen (if not a governmental unit); (3) the aircraft's make, model, and registration and serial number; and (4) whether the aircraft has been registered under the laws of a foreign country.

Section 91.53 (14 CFR 91.53) presently provides for the voluntary submission of Part 2 of AC Form 8050-73. Part 2 requests (but does not require) that the certificate holder submit the following information: (1) the name and address of the principal operator of the aircraft (if not the owner); (2) the make and model of the aircraft's engines; (3) the communications and navigational aids capability of the aircraft's equipment; (4) the airport where the aircraft is based; and (5) the activity of the aircraft for the previous calendar year (as shown by hours flown and purpose of flight).

Sections 47.44 and 91.53 were adopted in 1970, as Amendments Nos. 47-10 and 91-72 (published in the FEDERAL REGISTER on February 5, 1970; 35 FR 2578). The purpose of § 47.44 was to provide for updating and revising the aircraft register, so that it would reflect, to the extent possible, only those aircraft eligible for registration. The FAA has received these reports annually from 1970 through 1977. As a result, approximately 32,000 obsolete aircraft records have been removed from the aircraft register, and the register is now reasonably current.

Moreover, the FAA has determined that the aircraft register can now be kept current, for the most part, with the use of information that is submitted to the FAA in the ordinary course of business. This information includes: notices of the sale, export, destruction, theft, and cannibalization of aircraft; notices of change of address and of the death of aircraft owners; and requests for change of registration number.

With respect to those aircraft for which no information is received within a reasonable period of time, it may be necessary to require some holders of Certificates of Aircraft Registration to file a report similar to that required by § 47.44. Such a reporting system would be considerably less of a burden on the public and on the FAA than the present one. The FAA may initiate rulemaking in the near future to propose such a requirement.

The purpose of § 91.53 was to collect statistical information useful in long-range aviation planning and in forecasting FAA workload. In addition, the name and address of the principal operator, if other than the owner, was requested to assist in distributing airworthiness directives.

However, voluntary compliance with § 91.53 has not proven to be an effective means of collecting information on aircraft activity. After study of the matter, the FAA has determined that statistical sampling methods will be more effective. Moreover, because information as to the operator of the aircraft is collected on a voluntary basis and only once a year, § 91.53 has not been a satisfactory means of maintaining a mailing list for Airworthiness Directives. For these reasons, the FAA has determined it should no longer request the voluntary submission of Part 2 of AC Form 8050–73, and will consider other means of maintaining a suitable mailing list for Airworthiness Directives.

Revoking §§ 47.44 and 91.53 will relieve any burden that may be imposed by these annual reports, and will not result in any other burden on the public. It will also eliminate agency costs incurred for computer use, mail distribution, report processing, and legal enforcement.

In the past the FAA has mailed a partially preprinted AC Form 8050–73 to each holder of a Certificate of Aircraft Registration in January each year, for submission by April 1. These forms will not be sent out in January of 1978. To delay revoking §§ 47.44 and 91.53 could cause confusion among certificate holders as to their reporting responsibility for 1978. For this reason, the FAA has determined that notice and public procedure hereon would be impractical and contrary to the public interest and that good cause exists for making these amendments effective on less than 30 days notice.

Although these amendments are being adopted without prior notice and public procedure, interested persons may wish to comment on the revoking of these reporting procedures. Accordingly, they are invited to submit such written data, views, or arguments as they may desire. Communications should identify the regulatory docket or amendment number and be submitted in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket, AGC–24, 800 Independence Avenue, S.W. Washington, D.C. 20591.

DRAFTING INFORMATION

The principle authors of this document are Virginia Swimmer, Technical Section, FAA Aircraft Registry, and Joseph M. Dorsey, Office of the Chief Counsel.

ADOPTION OF THE AMENDMENT

Accordingly, Parts 47 and 91 of the Federal Aviation Regulations (14 CFR Parts 47 and 91) are amended, effective January 30, 1978, by revoking and reserving §§ 47.44 and 91.53. (Secs. 313(a), 501, and 601(a), Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1401, and 1421(a)); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A–107.

Amendment 91-147

Removal of References to Obsolete Compliance Dates and Equipment

Adopted: February 9, 1978 **Effective: March 20, 1978**

(Published in 43 FR 7205, February 21, 1978)

SUMMARY: This amendment revises an operating rule by deleting reference to obsolete compliance dates and equipment requirements. Those dates, which set up a timetable for the installation of a new class of ATC transponder equipment, have passed, and the prescribed equipment no longer satisfies revised requirements. The intended effect of this amendment is to clarify current equipment requirements.

FOR FURTHER INFORMATION CONTACT:

Maurice Taylor, Air Traffic Rules Branch, Airspace and Air Traffic Rules Division, Air Traffic Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 426-3128.

SUPPLEMENTARY INFORMATION:

HISTORY

Paragraph 91.97(a)(4)(i) describes transponder equipment that is not consistent with, and no longer satisfies the equipment requirements of § 91.24. Additionally, § 91.97(a)(4)(i) refers to obsolete compliance dates in § 91.24 for installing new transponder equipment. References to obsolete compliance dates and equipment are confusing and tend to derogate current safety requirements prescribed in § 91.24. Accordingly, this amendment merely references § 91.24 which prescribes the current equipment requirements.

This amendment is issued without a Notice of Proposed Rule Making since the FAA has found, for good cause, that notice and public procedure are unnecessary since this amendment is an editorial change that merely removes reference to obsolete equipment and compliance dates without prescribing any additional requirements.

DRAFTING INFORMATION

The principal authors of this document are Maurice Taylor, Air Traffice Service, and Phillip Kolczynski, Office of the Chief Counsel.

ADOPTION OF THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended, effective March 20, 1978, by revising § 91.97(a)(4)(i).

(Secs. 307 and 313(a) of the Federal Aviation Act of 1958 (49 U.S.C. §§ 1348, 1354(a)); and Sec. 6(c) of the Department of Transportation Act (49 U.S.C. § 1644(c)).)

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91-148

Transport Category Airplanes—Pitot Heat Indication Systems

Adopted: March 6, 1978 **Effective: April 12, 1978**

(Published in 43 FR 10338, March 13, 1978)

SUMMARY: This amendment adds requirements for the installation of a pitot heat indication system for the type certification of transport category airplanes having flight instrument pitot heating systems and for the installation, within three years, of a pitot heat indication system in all transport category airplanes equipped with flight instrument pitot heating systems. The amendment is based on service experience that indicates that pitot heat indication systems are needed in transport category airplanes having flight instrument pitot heating systems to provide greater assurance that incidents and accidents, caused by pilot reliance on faulty flight data instrumentation indications resulting from ice blockage of pitot ports, do not occur.

FOR FURTHER INFORMATION CONTACT:

Raymond E. Ramakis, Regulatory Projects Branch, Safety Regulations Division, Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

BACKGROUND AND DISCUSSION OF COMMENTS

This amendment is based on a notice of proposed rule making (Notice 76-12) published in the Federal Register on April 22, 1976, (41 FR 16827). Except as discussed herein, the reasons for this amendment are the same as those contained in Notice 76-12.

Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all matter presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rule based upon the relevant comments received and upon further review within the FAA. The significant public comments and noneditorial changes to the proposed rule are discussed below.

The majority of the comments received in response to Notice 76-12 were opposed to the proposed requirement for a pitot heat indication system. These commentators asserted that a properly trained pilot following proper checklist procedures would not leave the pitot heat switch turned off, when it should be on, that such a pilot would be able to recognize incorrect flight data caused by an inoperative pitot heating element and resultant pitot tube ice accumulation, and that, after recognition such a pilot would use other flight deck instrumentation to continue safe flight. These commentators recommended that the FAA encourage pilot professionalism and the use of proper checklist procedures instead of requiring the addition of an unnecessary and costly indicator to the already too numerous indicators, both visual and aural, that are installed on the flight deck. While the FAA agrees with the need for proper training and the use of proper flight deck checklist procedures, experience indicates that human error is likely to continue to occur and that with respect to pitot heating systems this could and has led to disastrous results. The addition of a pitot heat indication system while not guaranteeing against human error will provide additional assurance that pilots will become aware as early as possible of potentially dangerous situations. Considering the benefits expected and the relatively limited cost involved in the installation of a pitot heat indication system, the FAA believes the requirement to be warranted.

A number of commentators suggested the proposal be revised to permit the use of alternate indicating systems. Among the alternatives suggested were pitot heat element failure warning indicators, ammeters to measure current in pitot heat elements, and indicators to warn of ice accumulation at the pitot ports. In addition to being beyond the scope of Notice 76-12, the FAA does not believe any of these suggested alternate systems to be equivalent to the system proposed with respect to certain necessary characteristics. These alternates either provide no effective indication of whether the pitot heating system is switched on, provide a display that can be easily misinterpreted or overlooked by a flight crew, or provide an indication at a time after flight instrumentation indications have been adversely affected.

Several commentators pointed out that warning lights, which are usually red in color, are used only to provide an indication to the flight crew that a very serious situation exists that requires immediate corrective action. The commentators contended, and the FAA agrees, that the existence of an inoperative pitot heating system is not such a situation. Based on these comments, proposed § 25.1326(a) has been revised to change the required color of the indication light to amber, a color used to alert the flight crew of a less serious situation. In addition, proposed §§ 25.1326 and 91.50 have been revised to redesignate the name of the required system as a "pitot heat indication system".

As an alternative to requiring an indication for an inoperative pitot heating system, one commentator suggested that high reliability pitot heating elements could be required. The FAA does not agree. The reliability of pitot heating elements has not reached a level that would, for the reasons previously discussed, negate the need for an indication system.

A large number of commentators argued that the proposal was not consistent with the design of modern transport category airplanes that have master caution lights and annunciator panel displays and that the proposal should be revised to allow the incorporation of the pitot heat indication system into the existing displays. In this connection, the commentators stated that the proposed requirement, contained in § 25.1326(b), that the indicator be adjacent to the pilot in command airspeed indicator, and the proposed requirement, contained in § 25.1326(d), that the indicating light not be extinguishable when a pitot heating element is inoperative, could not be met with the existing master caution light and annunciator panel display. In addition, with respect to proposed § 25.1326(d), one commentator argued that an unnecessary battery drain would result from the proposal that could be hazardous during power-out conditions. The FAA agrees that the required pitot heat indication system should be allowed to be a part of the master caution light and annunciator panel display. This type of display is extremely effective because of its central location and the ease with which it can be checked by the flight crew. Accordingly, proposed §§ 25.1326(b) and (d) have been deleted. In addition, consistent with these changes, proposed § 25.1326 has been revised to provide that the required indication must be to a flight crewmember instead of the pilot. These changes also respond to a comment that the proposal went too far in dictating design.

One commentator questioned the requirement of proposed § 25.1326(c) which refers to pitot heating system switch positions. The commentator pointed out that on many airplanes the pitot heating system activates automatically and there exists no "switch". Based on this comment, the proposal has been revised to more clearly cover automatic switches.

One commentator pointed out that some airplanes have several pitot heating elements and questioned whether under proposed § 25.1326 an indicator would be required for each of these. As proposed the pitot heat indication system was required to provide an indication of an inoperative pitot heating system. Based on this comment, proposed § 25.1326(c) (§ 25.1326(b) as adopted) has been revised to make it clear that the indication is required irrespective of which pitot heating element is inoperative. Another commentator argued that the pitot heat indication system should indicate to the pilot which pitot heating element is inoperative. The FAA does not agree with this comment. Once the pilot is aware that there is an inoperative pitot heating element, the pilot can utilize other available instrumentation to determine which, if any, flight instruments are accurate and take appropriate action. Therefore, separate pitot heat indications are not necessary.

Based on several comments proposed § 25.1326(e) has been deleted. That provision is adequately covered under § 25.1301.

Several commentators objected to the provision contained in proposed § 91.50 that would require the installation of pitot heat indication systems in all transport category airplanes within three years. These commentators argued that service experience did

not justify the adoption of the rule and that if the rule were to be adopted, it should only apply to air carriers, air taxis, and commercial operators, or only to newly manufactured airplanes. The FAA disagrees. Contrary to the claims of the commentators, service experience justifies the adoption of the rule. At least one accident and a number of incidents have been reported that might have been avoided if a pitot heat indication system were installed, and the FAA believes that accidents and incidents will be avoided in the future by the adoption of this amendment. With respect to the operations involved, the FAA is unaware of any data or information to indicate that air carriers, air taxis, or commercial operators are any more susceptible than general aviation operators to the problems at which this amendment is directed. Moreover, due to the relative inexpense of the required indication system, the FAA does not believe restricting the retrofit rule to certain transport category airplanes is justified when the safety benefits are considered.

One commentator argued that 5 years would be necessary to install the pitot heat indication systems under proposed § 91.50. Another commentator stated that the three years provided in the proposal was too lengthy a period of time. In this connection, sufficient time is needed for the production, procurement, and installation of the required indication system. The FAA believes the three years proposed is a realistic time for accomplishing these tasks. However, the FAA recognizes that conditions beyond the control of an operator can occur to delay compliance with the rule. This could be the case even though a good faith effort was made by an operator to comply. Because of this, the proposal has been revised to provide, under appropriate circumstances, for a limited extension of the compliance date in accordance with a schedule acceptable to the FAA.

Many commentators objected to proposed §§ 91.50(b) and (c) which would have required the termination of a flight at the nearest suitable airfield if a pitot heating system became inoperative during flight and would have only permitted flights to a base for repair if the actual or forecasted free air temperature was above 32 degrees F. These commentators argued that the proposal could create other hazards by requiring landings at unfamiliar airports and that the altitudes permitted for flights to repair bases under the 32 degree F temperature criteria were unrealistically low. The FAA agrees with these comments. A pilot made aware of a malfunctioning pitot heating system would be able to safely continue operations in accordance with procedures with which pilots are aware. These procedures are contained in airplane flight manuals and minimum equipment lists. Moreover, many transport category airplanes are equipped with dual pitot and flight instrumentation systems and angle of attack indicators to assist the pilot in safely operating an aircraft with a malfunctioning pitot heating system. Accordingly, proposed §§ 91.50(b) and (c) have been deleted.

One commentator suggested that a pitot heat indication system should be required in each aircraft approved for operations under instrument flight rules (IFR). The FAA does not agree. In addition to the comment being beyond the scope of the notice, the FAA does not believe the benefits to be expected from the commentator's suggestion justify its adoption.

The FAA has determined, based on an evaluation of the expected benefits and other impacts on the public and private sectors, that the adoption of this amendment will result in greater assurance that pilots of transport category airplanes will not be dangerously misled by faulty flight instrument indications caused by pitot tube ice accumulation. Based on service experience and other information available, it is estimated that over a five year period approximately 140 lives may be saved by this amendment with the cost of equipment installation being between $500 and $700 for each of the approximately 4300 airplanes covered by the amendment.

DRAFTING INFORMATION

The principal authors of this document are Mr. Thomas Ryan, Flight Standards Service, and Mr. Samuel Podberesky, Office of the Chief Counsel.

THE AMENDMENT

Accordingly, Parts 25 and 91 of the Federal Aviation Regulations (14 CFR Parts 25 and 91) are amended effective April 12, 1978.

(Secs. 313(a), 601, 603, and 604, Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

The FAA has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91-149

VFR Cruising Altitude or Flight Level

Adopted: February 28, 1978 **Effective: March 16, 1978**

(Published in 43 FR 10903, March 16, 1978)

SUMMARY: This amendment authorizes FAA air traffic control (ATC) to assign, to aircraft operating under visual flight rules (VFR), altitudes or flight levels other than those specified in the rule for VFR aircraft. FAA experience indicates that the current inflexible altitude rule for VFR aircraft limits the ability of ATC to ensure safe separation of aircraft. This amendment is intended to prevent a potentially unsafe traffic conflict where VFR aircraft are receiving ATC separation.

FOR FURTHER INFORMATION CONTACT:

Mr. C. M. Stratton, Air Traffic Rules Branch, AAT-220, Airspace and Air Traffic Rules Division, Air Traffic Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 426-3128.

SUPPLEMENTARY INFORMATION:

Section 91.109 of the Federal Aviation Regulations provides that, with certain exceptions, each person operating an aircraft under VFR in level cruising flight at an altitude of more than 3,000 feet above the surface shall maintain specific altitudes depending on the direction of flight. The purpose of this rule is to assist VFR pilots in seeing and avoiding each other. This rule works well where aircraft are relying exclusively on visual avoidance of other traffic. However, specific cruising altitudes are not prescribed in Part 91 for aircraft under Instrument Flight Rules (IFR) that are operating in controlled airspace (and thus being separated by ATC). To the contrary, § 91.21(a) permits ATC to assign any altitude or flight level needed for the separation of these IFR aircraft. This recognizes the fact that, once under ATC control, a pilot must be free to respond at once to ATC instructions and clearances, in accordance with § 91.75, and consistent with the pilot's duty to see and avoid other aircraft in compliance with § 91.67(a).

This same situation exists for certain VFR aircraft. These include aircraft which, while not operating under IFR, are nevertheless being separated from other aircraft by ATC. Like IFR aircraft, these VFR aircraft are operating under ATC clearances and instructions that are essential to the safety of all users of the airspace. Also like IFR aircraft, these VFR aircraft are required by § 91.75 to comply with these ATC clearances and instructions. The airspace in which VFR aircraft receive ATC separation service includes terminal control areas (TCA's) and terminal radar service areas (TRSA's).

In both of these areas of heavy air traffic, safety requires that ATC have the same flexibility in assigning the altitudes of VFR traffic as it has in assigning the altitudes of IFR traffic. Experience in controlling VFR aircraft in these areas has shown that limiting these aircraft to the altitudes and flight levels specified in § 91.109 may create artificial constraints, on the flow of air traffic, that are not consistent with this basic safety need. Since ATC must, on occasion, assign altitudes to VFR aircraft that are not specified in § 91.109, in order to ensure safe separation, this authority must be clearly and immediately stated in § 91.109 itself.

To achieve this result, this amendment adds the words "unless otherwise authorized by ATC" to the end of the introductory paragraph of § 91.109. Minor editorial improvements are also made.

PUBLIC PROCEDURE, EFFECTIVE DATE, AND REQUEST FOR COMMENTS

For the reasons stated above, the FAA finds that (1) a potential safety problem exists which requires immediate adoption of this amendment, (2) notice and public procedure hereon are therefore impracticable and contrary to the public interest, and (3) good cause exists for making this amendment effective less than 30 days after publication in the FEDERAL REGISTER. However, the FAA recognizes the need for active public participation in its regulatory actions.

Interested persons are therefore invited to submit comments concerning the effect of this amendment. These comments will be reviewed to determine whether further rule making is appropriate. Comments should be received on or before May 15, 1978, and will be available, in the Rules Docket, for public inspection before and after that date. Comments should identify the regulatory docket number and be submitted in duplicate to the Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket, AGC-24, 800 Independence Avenue, SW., Washington, D.C. 20591.

DRAFTING INFORMATION

The principal authors of this document are C. M. Stratton, Air Traffic Service, and Richard W. Danforth, Office of the Chief Counsel.

ADOPTION OF THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended, effective March 16, 1978, by amending the introductory paragraph of § 91.109. (Secs. 307(c) and 313(a) of the Federal Aviation Act of 1958 as amended (49 U.S.C. §§ 1348(c), 1354(a)); and Sec. 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)).

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91-150

Taxi Clearances at Airports With Operating Control Towers

Adopted: March 10, 1978 **Effective: April 19, 1978**

(Published in 43 FR 11575, March 20, 1978)

SUMMARY: This amendment makes it clear that an air traffic control (ATC) clearance to "taxi to" an assigned runway prior to taking off on that runway does not authorize the aircraft to cross that same runway where it intersects the taxi route, and that an ATC clearance to a point on an airport other than the takeoff runway is a clearance to cross all intersecting runways. The rule is revised to apply to "persons" rather than "pilots." This amendment is intended to reduce the possibility of misinterpretation of the limits of a taxi clearance.

FOR FURTHER INFORMATION CONTACT:

Maurice E. Taylor, Air Traffic Rules Branch, AAT-220, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone: (202) 426-3128.

SUPPLEMENTARY INFORMATION:

HISTORY

This amendment is based on a Notice of Proposed Rule Making (Notice No. 77-10) published in the Federal Register on June 30, 1977 (42 FR 33344). Interested persons have been afforded an opportunity to participate in the making of this amendment. Twenty-three comments were received in response to the notice, and due consideration has been given to all matter presented.

ANALYSIS OF COMMENTS

One comment opposed adoption of the proposal. It stated that the proposal is unneeded because it is clearly impossible to taxi across or along a runway without taxiing on the runway's surface and the rule clearly prohibits such taxiing. While the FAA agrees that this was the intent of the rule, enough instances of misunderstanding have occurred to show that a safety problem may exist.

Twenty-two commenters either approved the proposal in its entirety or suggested modifications that, in their opinion, would promote safety.

Over one half of the comments suggesting changes to the proposed amendment stated that a clearance should be obtained to cross any active runway, or, as in one comment, any runway. The FAA believes that this would impose too great a burden upon persons to ascertain which runways are in use. If ATC wants a taxiing aircraft to hold clear of a runway in use, that limitation should be stated in the taxi clearance. Also, such suggested changes would result in additional radio transmissions.

One commenter indicated that a taxi clearance to any point other than an assigned takeoff runway is an unrestricted clearance to taxi, unlike the clearance to taxi to the assigned takeoff runway, and that this creates two different kinds of clearance limit. While this is true, the FAA believes that the limit applicable to the assigned takeoff runway is necessary for safety and is not a great burden to place upon persons operating aircraft. A clearance to taxi to any point other than an assigned takeoff runway is literally an unrestricted clearance to taxi over the route assigned to arrive at that point. This difference between the two kinds of taxi clearance is intended.

One commenter, while concurring with the proposal, suggested that the phrase "issued by ATC" should be inserted between the words "the taxi route" and "to the assigned takeoff runway" in the second sentence of proposed § 91.87(h). The FAA does not believe that this is necessary since the rule applies to operations at airports with operating control towers and, therefore, any taxi route issued would be issued by ATC.

This commenter also suggested that the word "assigned" be inserted between "intersect the" and "taxi route" in the last sentence of the proposal to indicate that a specific taxi route has been issued by ATC. The FAA believes that the phrase "the taxi route" has the same meaning and that no further definition is required.

One commenter assumed that the last sentence of the proposal was intended "to conform with the intent of entire paragraph" by not allowing a person to cross any runway en route to any point on the airport other than the assigned takeoff runway, but that this meaning was not clearly stated. This was not the intended effect. The intent of that sentence is to allow a person to taxi an aircraft to any point on the airport except when the clearance limit is the takeoff runway assigned to that aircraft, in which case the clearance does not authorize taxiing on the assigned takeoff runway.

Several commenters addressed what they felt was a problem with the proposal in that it does not cover aircraft taxiing after landing . The first sentence of § 91.87(h) continues, under this amendment, to provide that no person may operate on an airport with an operating control tower unless an appropriate clearance has been received. This continues to apply to aircraft taxiing after landing as well as to other taxiing aircraft.

The FAA has determined, after evaluating the comments received, that this amendment mitigates a potential safety problem and that its adoption will clarify certain taxi clearances at airports with operating control towers.

DRAFTING INFORMATION

The principal authors of this document are Maurice E. Taylor, Air Traffic Service, and Jack P. Zimmerman, Office of the Chief Counsel.

THE AMENDMENT

Accordingly, § 91.87(h) of Part 91 of the Federal Aviation Regulations (14 CFR 91) is amended, effective April 19, 1978.

(Secs. 307 and 313(a), Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348 and 1354(a)); Sec. 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)).

The FAA has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91–151

Temporary Operation of Aircraft Without an Emergency Locator Transmitter (ELT)

Adopted: March 13, 1978 **Effective: March 16, 1978**

(Published in 43 FR 10905, March 16, 1978)

SUMMARY: This amendment adds an exception to the ELT requirement to permit the temporary operation of aircraft from which the ELT has been removed for inspection, repair, modification, or replacement. The enactment of Public Law 95–163, which amended § 601(d) of the Federal Aviation Act of 1958, created the need to amend the Federal Aviation Regulations (FAR) and implement the Public Law.

FOR FURTHER INFORMATION CONTACT:

Mr. Raymond E. Ramakis, Regulatory Projects Branch, Safety Regulations Division, Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

Section 601(d) of the Federal Aviation Act of 1958, contains the requirement that ELTs be installed on most types of aircraft, with certain exceptions specified in paragraph (d)(2). Section 91.52 of the FARs implements this statutory requirement and subsection (f) lists the exceptions.

Public Law 95–163, effective November 9, 1977, amended § 601(d)(2) of the Act to permit the temporary operation of aircraft from which the ELT has been removed for inspection, repair, modification or replacement, subject to regulations prescribed by the Administrator. Accordingly, the FAA is amending § 91.52(f) of the FARs to add another exception which implements the Act, as amended.

Since this amendment is being adopted without prior notice and public procedure, and is intended as interim rule-making action to enable the FAA to obtain information upon which to base a permanent rule change, interested persons are invited to submit comments on it. Comments should be mailed to the Rules Docket, AGC–24, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591, and should reference FAR 91.52(f)(10). The FAA will consider all comments received on or before June 14, 1978, in connection with this rule, and, if found to be justified, the FAA will initiate further rule-making action to amend FAR 91.52(f)(10).

DRAFTING INFORMATION

The principal authors of this document are Gerald S. Holliday, Flight Standards Service, and Darlene F. Romanias, Office of the Chief Counsel.

ADOPTION OF THE AMENDMENT

Since this amendment is necessary to implement Public Law 95–163 and relieves a restriction, I find that notice and public procedure hereon are unnecessary and that good cause exists for making this amendment effective on less than 30 days notice.

Accordingly, Part 91 of the Federal Aviation Regulations is amended, effective March 16, 1978.

(Secs. 313(a) and 601 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a) and 1421), and Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A–107.

Amendment 91-152

Operations Review Program

Amendment No. 4: Miscellaneous Amendments

Adopted: May 19, 1978 **Effective: June 26, 1978**

(Published in 43 FR 22636, May 25, 1978)

SUMMARY: The purpose of these amendments is to update and improve regulations concerning aircraft maintenance, airmen certification, and general operating and flight rules, parachuting, certification and operation of air carriers and commercial operators, air travel clubs, agricultural aircraft operations, repair stations, and aviation maintenance technical schools. These amendments are part of the Operations Review Program.

FOR FURTHER INFORMATION CONTACT:

Mr. D. A. Schroeder, Safety Regulations Division,
Federal Aviation Administration, 800 Independence Avenue, S.W.,
Washington, D.C. 20591; telephone: 202-755-8715.

SUPLEMENTARY INFORMATION:

HISTORY

These amendments are the fourth in a series of amendments to be issued as a part of the Operations Review Program. The following series of amendments have previously been issued as part of the Operations Review Program:

Title	*FR Citation*
Clarifying and editorial changes	(41 FR 47227; October 28, 1976)
Rotorcraft External-Load Operations	(42 FR 24196; May 12, 1977 amended by 42 FR 32531; June 27, 1977)
Airspace, Air Traffic and General Operating Rules	(To be issued at a later date)

These amendments are based on a Notice of Proposed Rule Making (Notice 76-28) published in the Federal Register on December 27, 1976, (41 FR 56280). All interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review by the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and reasons for their adoption are the same as those contained in Notice 76-28.

Five proposals which were contained in Notice 76-28, pertaining to Part 135, Air Taxi Operators and Commercial Operators of Small Aircraft, are not being dealt with here. They will be considered in conjunction with the proposals contained in Part 135 Regulatory Review Program, Notice No. 77-17: Air Taxi Operators and Commercial Operators (42 FR 43490; August 29, 1977).

Amendments to § 121.343(d), § 121.359(e), § 121.703(f), §127.127(d), and § 127.313(f) were not included in Notice 76-28. Since these amendments are editorial changes which reflect the National Transportation Safety Board's revised regulations, they are included in this amendment.

DISCUSSION OF COMMENTS

The following discussion is keyed to the like-numbered proposals contained in Notice 76-28.

Proposal 4-1. One commenter suggested that the word "knowingly" be inserted between "may" and "make" in paragraph (a) of proposed § 43.12 to clarify the intent behind the meaning of the word "fraudulent". The FAA does not believe it is necessary to add the word "knowingly" since the proof of a fraudulent act is based on the person knowingly committing the act. Accordingly, the proposal is adopted without substantive change.

Proposal 4-2. No unfavorable comments were received on the proposal to revise paragraph (b)(2)) of Appendix E to Part 43. Accordingly, the proposal is adopted without substantive change.

Proposal 4-3. One commenter recommended clarification of the first paragraph of Appendix F to Part 43 which refers to an additional 3 decibel (db) tolerance allowed to compensate for antenna coupling errors during receiver sensitivity measurements. The commenter states this has been interpreted by some to mean ±1½db and by others to mean ±3db. After review, the FAA agrees and the proposed rule is changed by substituting the word "loss" for "tolerance."

After further review of paragraph (a), Appendix F to Part 43, the FAA believes the words "of the system" should be inserted between the words "frequency" and "is" to clarify that the antenna should be used during the transponder frequency check. Accordingly, proposed Appendix F to Part 43 is adopted as proposed except for the revisions discussed above.

Proposal 4-4. One commenter was against extending the effective date of a temporary certificate from 90 days to 120 days and suggested that the FAA's certificate handling facilities should be improved to provide more rapid service. The FAA believes that an addition of 30 days is necessary to handle the numerous applications received and to avoid the need for applicants to obtain renewal of the temporary certificate. The proposed change to § 61.17(a) with respect to inserting the number "120" in place of "90" was also proposed for § 63.13 and § 65.13 (Proposals 4-5 and 4-11 respectively) and commented on as above. Accordingly, proposed §§ 61.17(a), 63.13 and 65.13 are adopted without substantive change.

Proposal 4-5. For a discussion of comments related to the proposal to amend § 63.13 and for the disposition of that proposal, see Proposal 4-4.

Proposal 4-6. A comment was received which discussed matters not proposed in Notice 76-28. This comment is beyond the scope of the Notice and cannot be considered without further notice and public participation. For a discussion of comments related to proposed § 63.41(b) and for the withdrawal of that proposal, see Proposal 4-12.

Proposal 4-7. No unfavorable comments were received on the proposal to delete § 63.53(b) and (c). Accordingly, the proposal is adopted without substantive change.

Proposal 4-8. No unfavorable comments were received on the proposal to amend § 63.57(a) and therefore it is adopted without substantive change. However, the FAA believes the words "any part of" and "except the section on plotting and computing" in § 63.57(b) should be deleted since they are rendered unnecessary by the amendment to § 63.53 (see Proposal 4-7). Accordingly, the words discussed above are deleted from § 63.57(b).

Proposal 4-9. No unfavorable comments were received on the proposal to revise § 63.59(b) or (c) and the proposal is adopted without substantive change. For comments related to proposed § 63.59(a)(2) and deletion of the phrase "in the case of applicant's first failure" in proposed § 63.59(a)(2), see Proposal 4-12.

Proposal 4-10. Although there were no unfavorable comments to the proposed revision of Appendix A of Part 63, the FAA believes the proposal should be withdrawn since a substantial portion of the rule was inadvertently omitted. Accordingly, the proposal to revise Appendix A of Part 63 is withdrawn.

Proposal 4-11. For a discussion of comments relating to the proposal to amend § 65.13 and for the disposition of that proposal, see Proposal 4-4.

Proposal 4-12. Thirty-nine comments objected to the proposed amendments to § 65.19. Many commenters objected to limiting the number of retests to one within 30 days as proposed in § 65.19(b) in case of an applicant's first failure. These commenters stated that this restriction would place an unnecessary burden on applicants by increasing the time for certification without a commensurate increase in benefits or safety. Upon further review, the FAA agrees and the phrase "In the case of an applicant's first failure" in proposed § 65.19(b) is deleted.

The proposed change to § 65.19(b) with respect to the phrase "In the case of an applicant's first failure" is identical to the proposed change to §§ 63.41(b) and 63.59(a)(2) in Proposals 4-6 and 4-9 respectively. Accordingly, the proposed change to § 63.41(b) is withdrawn and the proposed change to § 63.59(a)(2) is amended to delete the above phrase.

Several commenters objected to proposed § 65.19(b) because it denied certified ground instructors the privilege of giving additional instruction to applicants in preparing them for retesting. The commenters stated that ground instructors were the only persons, other than flight instructors, who have been tested on their ability to teach various technical subjects. The FAA does not issue ground instructor ratings which are appropriate to teach air traffic control tower operator, aircraft dispatcher, parachute rigger, or mechanic applicants.

Since aviation safety and public interest demands that only persons who have demonstrated their technical knowledge and skill for a particular certificate should be qualified to provide instruction and certify competency for that certificate, the FAA believes the instructor must possess at least the same certificate and rating that the applicant is seeking to obtain. Accordingly, the proposal to amend § 65.19 is adopted as proposed with the revision discussed above.

Proposal 4-13. One commenter believed § 91.8 should be further expanded to include the prohibition against the interference with flight crewmembers before the aircraft is boarded. Since such a prohibition would be difficult to enforce and could give rise to jurisdictional problems, the FAA does not consider this prohibition a proper subject for rulemaking.

One commenter stated that proposed § 91.8(b) could apply to an aircraft owner who might ask the pilot to alter course or change destination. The commenter suggests clarifying the language. Another commenter expressed concern for the proposed wording of § 91.8(b) since it appears that a pilot examiner would be in violation by asking a private pilot applicant to divert from a course during a flight test. This was not the FAA's intent. The prohibition was directed toward unreasonable requirements, such as hijacking or requiring a change under duress. However, after further review, the FAA believes § 91.8(b) is not necessary since these acts are provided for in § 91.8(a). Accordingly, the proposal is adopted with the revisions discussed.

Proposal 4-14. No unfavorable comments were received on the proposal to revise § 91.15(a)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 4-15. No unfavorable comments were received on the proposal to amend § 91.17. Accordingly, the proposal is adopted without substantive change.

Proposal 4-16. No unfavorable comments were received on the proposal to revise § 91.18(a). Accordingly, the proposal is adopted without substantive change.

Proposal 4-17. No unfavorable comments were received on the proposed revision to § 91.43(b). Accordingly, the proposal is adopted without substantive change.

Proposal 4-18. One commenter disagreed with the proposed revision to § 91.52(d)(2) that would require the new expiration date for replacement (or recharge) of the emergency locator transmitter's battery to be entered in the aircraft maintenance record and suggested the use of a placard located inside the cabin as a better solution. The FAA believes that a maintenance record entry is a more reliable method of determining the replacement date than a placard. Accordingly, proposed § 91.52(d)(2) is adopted without substantive change.

Proposal 4-19. Several commenters contended that proposed § 91.73(d) would be too restrictive and does not allow sufficient discretionary authority to the pilot in command as to when the anticollision lights should or should not be lighted. They state that the use of a strobe light as an anticollision light would create an unsafe condition during certain aircraft operation such as taxiing, takeoff and landing, if the pilot did not have the option to turn it off except during adverse meteorological conditions.

In light of these comments and upon further review, the FAA agrees that there are instances when the use of a high intensity anticollision light could induce vertigo and cause spatial disorientation. Accordingly, § 91.73(d) is revised to provide that the pilot in command may turn off the anticollision lights at any time in the interests of safety.

Proposal 4-20. One commenter does not believe the word "nearest" in proposed § 91.83(d) conveys the operational procedure presently used by the FAA, and suggested it be changed. In light of this comment, and after further review, the FAA believes that any restrictive term is unnecessary and could possibly discourage the filing of flight plans. Accordingly, the words "the nearest" in proposed § 91.83(d) are deleted and the word "an" inserted.

Proposal 4-21. One commenter objected to the wording of proposed § 91.173 on the ground that it places an unwarranted burden on the owner or operator to determine such items as revision date, airworthiness directive (AD) number, and if an AD involves recurring action, the time and date when the next action is required. The commenter further stated that § 91.173 places responsibility on the owner or operator for the content of Part 43 maintenance record entries made by persons authorized by the FAA.

The FAA believes that the owner or operator should be responsible for the retention of the required maintenance records for the specified periods and furnish such records to the person authorized by the FAA to accomplish the work. The FAA believes that the owner or operator should also ensure that the appropriate information as prescribed in § 91.173 is entered in the maintenance records. The intent of the proposal is to require the retention of more specific information relating to ADS and their compliance. In addition, each person authorized to perform the maintenance is only responsible for the content of the required record entries. Accordingly, the proposed revisions to § 91.173(a), (b), and (a)(2)(v) and the addition of new (b)(3) are adopted without substantive change.

Proposal 4-22. One commenter who supported the proposed § 91.189(b)(5) suggested that attachment points for the lifeline be permanently installed on the wings of the aircraft. The FAA believes current § 25.1411(g) adequately covers lifeline attachment. Accordingly, proposed § 91.189(b)(5) is adopted without substantive change.

Proposal 4-23. The only public comment received on the proposal to amend paragraph 2(a)(7) of Appendix A to Part 91 recommended that radio altimeters be incdluded in the proposed requirement but gave no further explanation. Since radio altimeters have markings at 20 feet or less intervals, the FAA believes that no reason exists at this time to include them in this amendment. Accordingly, the proposal is adopted without substantive change.

Proposal 4-24. No unfavorable comments were received on the proposal to revise § 105.15(b). Accordingly, the proposal is adopted without substantive change.

Proposal 4-25. One commenter supported proposed § 105.33(a) and (b) providing adequate exceptions exist for emergency situations, but did not state what type of exceptions he was referring to.

Another commenter contends that a light should not be displayed during free-fall because such a light decreases night vision and could possibly induce vertigo or spatial disorientation.

The FAA does not believe that such a light would significantly decrease night vision and induce vertigo or spatial disorientation. The FAA believes that a parachute jumper presents an object in the airspace from the instant the jumper exits the aircraft until the jumper reaches the surface. All that changes with the deployment of the chute is the speed the object is falling. A free-fall jump can extend through thousands of feet of airspace, presenting a hazard to air navigation. Accordingly, in the interest of safety, proposed § 105.33(a) and (b) are adopted without substantive change.

Proposal 4-26. No unfavorable comments were received on the proposal to amend § 105.43. Accordingly, the proposal is adopted without substantive change.

Proposal 4-27. No unfavorable comments were received on the proposal to revise § 121.11. Accordingly, the proposal is adopted without substantive change.

Proposal 4-28. No unfavorable comments were received on the proposal to amend § 121.26. Accordingly, the proposal is adopted without substantive change.

Proposal 4-29. No comments were received on the proposal to revise § 121.29(b). After further review, the FAA believes there is no current need for the proposed revision. Accordingly, proposed § 121.29(b) is withdrawn.

Proposal 4-30. No unfavorable comments were received on the proposal to amend § 121.47(a). Accordingly, the proposal is adopted without substantive change.

Proposal 4-31. No comments were received on the proposal to revise § 121.53(e). After further review, the FAA believes there is no current need for the proposed revision. Accordingly, proposed § 121.53(e) is withdrawn.

Proposal 4-32. No favorable comments were received on the proposal to revise § 121.61(b)(1). Accordingly, the proposal is adopted without substantive change.

Proposal 4-33. No unfavorable comments were received on the proposal to amend § 121.135(b)(6) and (7). Accordingly, the proposal is adopted without substantive change.

Proposal 4-34. No unfavorable comments were received on the proposal to amend § 121.191(a). Accordingly, the proposal is adopted without substantive change.

Proposal 4-35. The commenters to proposed § 121.309(b)(4) contend the proposal was unnecessarily redundant, served no useful purpose, and did not enhance safety. The commenters objected to this proposal from the standpoint that it would impose: (1) an unwarranted recordkeeping burden on operators utilizing an equipment control program that is controlled by hours or cycles and not by a specific inspection due date; (2) a risk of not having the inspection dates marked on the containers when equipment items were transferred from one ariplane to another; and (3) an additional task of changing inspection dates with possible resultant error.

In light of these comments and after further review, the FAA believes the proposal would possibly impose a burden not commensurate with its probable contribution to safety. Accordingly, proposed § 121.309(b)(4) is withdrawn.

Proposal 4-36. One commenter suggested the use of the phrase "no person" instead of "no passenger or crewmember" in proposed § 121.317(h). The FAA believes the phrase "no passenger or crewmember" is more definitive and the proposed wording is retained. Another commenter objected to the proposal on the grounds that there are instances when it is acceptable for cockpit crewmembers to continue to smoke and stated that this determination should be left up to the discretion of the cockpit crewmembers. The FAA disagrees. As a safety factor, flight crewmembers should be prohibited from smoking when the "no smoking" sign is lighted. Accordingly, proposed § 121.317(a) and (b) is adopted without substantive change.

Proposal 4-37. No unfavorable comments were received on the proposal to amend § 121.401(c). Accordingly, the proposal is adopted without substantive change.

Proposal 4-38. No unfavorable comments were received on the proposal to revise § 121.440(b)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 4-39. Two comments were received on both proposed §§ 121.548 and 127.212 which discussed matters not proposed in Notice 76-28. These comments are beyond the scope of the Notice and cannot be considered without further notice and public participation. Accordingly, proposed § 121.548 and § 127.212 (Proposals 4-39 and 4-54 respectively) are adopted without substantive change.

Proposal 4-40. No unfavorable comments were received on the proposal to amend § 121.651(d)(2). Accordingly, the proposal is adopted without change.

Proposal 4-41. No unfavorable comments were received on the proposal to amend § 121.652(a). However, as stated in the preamble to Notice 76.,28, the FAA believes the flight time, in order to be credited, must be acquired in the same "type" airplane. Accordingly, the proposal is adopted by inserting the word "type" to further clarify the intent of the rule.

Proposal 4-42. No unfavorable comments were received on the proposal to amend § 121.697(e)(2). Accordingly, the proposal is adopted without substantive change.

Proposal 4-43. No unfavorable comments were received on the proposal to revise § 121.723(a) and (b). However, in order to avoid the reissuance of certificates at the conclusion of each assignment, the wording is changed so that the certificate is retained until termination of employment with the carrier or operator. Accordingly, the proposal is adopted with the change discussed.

Proposal 4-44. No unfavorable comments were received on the proposal to add a new § 123.11(b)(3). Accordingly, the proposal is adopted without substantive change.

Proposal 4-45. No unfavorable comments were received on the proposal to add a new § 123.12. Accordingly, the proposal is adopted without substantive change.

Proposal 4-46. No unfavorable comments were received on the proposal to revise § 123.13. Accordingly, the proposal is adopted without substantial change.

Proposal 4-47. No unfavorable comments were received on the proposal to revise § 123.15(a). Accordingly, the proposal is adopted without substantive change.

Proposal 4-48. No comments were received on the proposal to revise § 123.19(c). After further review, the FAA believes there is no current need for the proposed revision. Accordingly, proposed § 123.19(c) is withdrawn.

Proposal 4-49. No unfavorable comments were received on the proposal to revise § 123.27. Accordingly, the proposal is adopted without substantive change.

Proposal 4-50. No unfavorable comments were received on the proposal to revise § 123.41(a)(1). Accordingly, the proposal is adopted without substantive change.

Proposal 4-51. No unfavorable comments were received on the proposal to revise § 127.3. Accordingly, the proposal is adopted without substantive change.

Proposal 4-52. No comments were received on the proposal to revise § 127.21(b). After further review, the FAA believes there is no current need for the proposed revision. Accordingly, proposed § 127.21(b) is withdrawn.

Proposal 4-53. No unfavorable comments were received on the proposal to revise § 127.151(a). Accordingly, the proposal is adopted without substantive change.

Proposal 4-54. For a discussion of comments relating to proposed § 127.212 and for the disposition of that proposal, see Proposal 4-39.

Proposal 4-55. No unfavorable comments were received on the proposal to revise § 127.249(b). Accordingly, the proposal is adopted without substantive change.

Proposals 4-56 through 4-60. These proposals are included in the Part 135 Regulatory Review Notice 77-17: Air Taxi Operators and Commercial Operators (42 FR 43490; August 29, 1977). Comments received on the proposed amendments to Part 135 in Notice 76-28 will be considered in conjunction with other comments received in response to Notice 77-17.

Proposal 4-61. No unfavorable comments were received on the proposal to amend § 137.19(e). Accordingly, the proposal is adopted without substantive change.

Proposal 4-62. No unfavorable comments were received on the proposal to delete Part 149 "Parachute Lofts" and transfer those requirements to a new Subpart E in Part 145. However, after further review, the FAA believes the incorporation of Part 149 into Part 145 as proposed would create redundancy in the rules and cause confusion. Accordingly, the proposal to amend Part 145 is withdrawn.

Proposal 4-63. No unfavorable comments were received on the proposal to revise § 145.17(b). After further review, the FAA believes the words "surrendered, suspended, or," should be reinserted between the words "sooner" and "revoked" in § 145.17(b) since they appear in current § 145.17(b). This oversight is corrected in the adopted rule since it was not a change intended by the proposal. Accordingly, the proposal to revise § 145.17(b) is adopted as proposed except for the revision discussed above.

Proposal 4-64. No unfavorable comments were received on the proposal to amend § 145.59(a). Accordingly, the proposal is adopted without substantive change.

Proposal 4-65. No unfavorable comments were received on the proposal to revise § 147.31(c)(1) and to add a new § 147.31(c)(2). After further review, the FAA believes that the following editorial changes should be made: (1) in the proposed § 147.31(c)(1)(ii) the word "accreditation" is used in place of the word "certification" which appears in current § 147.31(c)(1). This oversight is corrected in the adopted rule since it was not the intent of the proposal to change the wording to accreditation; (2) the phrase "other than the crediting school" immediately following the word "accreditation" in proposed § 147.31(c)(1)(ii) was inadvertantly omitted and has been included in the final rule. Accordingly, the proposal to revise § 147.31(c)(1) and to add a new § 147.31(c)(2) is adopted as proposed except for the revisions discussed above.

Proposal 4-66. Although there were no unfavorable comments to the proposed deletion and reservation of Part 149, the proposal is withdrawn for the reasons discussed in Proposal 4-62.

DRAFTING INFORMATION

The principal authors of this document are Thomas G. Walenta, Flight Standards Service, and Richard B. Elwell, Office of General Counsel.

ADOPTION OF THE AMENDMENTS

Accordingly, Parts 43, 61, 63, 65, 91, 105, 121, 123, 127, 137, 145, and 147 of the Federal Aviation Regulations (14 CFR Parts 43, 61, 63, 65, 91, 105, 121, 123, 127, 137, 145, and 147) are amended as follows, effective June 26, 1978.

(Secs. 313, 314, and 601 through 610 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1355, and 1421 through 1430) and Sec. 6(c) of the Department of Transportation Act (41 U.S.C. 1655)).)

NOTE.—The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Amendment 91-153

Civil Supersonic Airplanes
Noise and Sonic Boom Requirements

Adopted: June 26, 1978 **Effective: July 31, 1978**

(Published in 43 FR 28406, June 29, 1978)

SUMMARY: These final rules (1) require all civil supersonic airplanes (SSTs), except Concordes with flight time before January 1, 1980 (presently expected to include 16 Concordes), to comply with the noise limits of Part 36 of Title 14 of the Code of Federal Regulations ("Part 36") that were originally applied to subsonic airplanes, in order to operate in the U.S.; (2) prohibit the issuance of U.S. Standard Airworthiness Certificates to Concordes that do not have flight time before January 1, 1980 and that do not comply with Part 36; (3) prohibit the operation in the U.S. of the excepted Concorde airplanes if they have been modified in a manner that increases their noise; (4) prohibit scheduled operations of the excepted Concorde airplanes at U.S. airports between 10 p.m. and 7 a.m., and (5) prohibit SSTs that are outside the U.S. from causing sonic booms in the U.S. when flying to or from U.S. airports. These provisions respond to the public need for the control of sonic boom and SST noise in accordance with § 611 of the Federal Aviation Act of 1958, as amended by the Noise Control Act of 1972. The rules do not establish certification noise limits for future design SSTs, since the technological feasibility of such standards is at present unknown. The FAA's goal is not to certificate, or permit to operate in the United States, any future design SST that does not meet standards then applicable to subsonic airplanes. This rule is issued following close coordination with the U.S. Environmental Protection Agency (EPA). A detailed discussion of FAA's disposition of EPA's proposals concerning SST noise is contained in a separate Notice of Decision published in this issue of the Federal Register.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION

I. SYNOPSIS

A detailed section-by-section analysis of these rules is furnished at the conclusion of this preamble. Briefly, these rules are substantively the same as those proposed in Notice No. 77-23 on October 13, 1977, and have the following effects:

A. SST OPERATIONS IN THE UNITED STATES

Except for the 16 Concordes which are expected to have flight time before January 1, 1980, all SSTs are required by these rules to comply with the noise limits of Part 36 in effect on January 1, 1977 ("Stage 2 noise limits") in order to operate in the United States. These are the same noise limits that were originally applicable to subsonic airplanes by Part 36. It is the FAA's goal not to certificate or permit to operate in the United States any future design SST that does not meet standards then applicable to new design subsonic airplanes. Accordingly, consistent with technological developments, the noise limits in this rule are expected to be made more stringent before a future design SST is either type certificated or permittd to operate in the United States.

B. THE FIRST 16 CONCORDES

The first 16 Concordes, which is the maximum number that Britain and France are expected to manufacture before January 1, 1980, are excepted from compliance with the Stage 2 noise limits of Part 36. There is presently no expiration date on this exception. However, under these rules, the excepted Concordes may not be operated on flights scheduled, or otherwise planned, for takeoff or landing at U.S. airports after 10 p.m. and before 7 a.m. local time. Moreover, these rules subject the excepted Concordes that operate in the U.S. to an "acoustical change" requirement identical to that applied to U.S. type certificated subsonic airplanes that have not been shown to comply with Stage 2 noise limits. Like those subsonic airplanes (which are called "Stage 1 airplanes" in Part 36), the noncomplying Concordes may not be operated in the U.S. if their design is changed in a way that increases their noise levels.

C. LATER CONCORDES: "NEW PRODUCTION" RULE

Although it is expected that Concordes will not be produced beyond January 1, 1980, such production is possible. Accordingly, for any Concorde that does not have flight time before January 1, 1980, this rule prohibits the issuance of a U.S. Standard Airworthiness Certificate unless the airplane complies with at least the Stage 2 noise limits of Part 36.

D. CONCORDE TYPE CERTIFICATION: NOISE LIMITS

The British-French Concorde is the only SST for which application has been made for a U.S. type certificate. A U.S. type certificate constitutes FAA approval of the safety and environmental aspects of an airplane type and is necessary for American air carriers to operate the airplane. Because there is no presently known technology which would reduce Concorde noise levels, the maximum noise limits (for approach, takeoff, and sideline) authorized at this time by these rules for the purposes of a U.S. type certificate are the current noise levels of that airplane.

E. CONCORDE TYPE CERTIFICATION: TEST PROCEDURES

These rules broaden the detailed noise measurement and evaluation procedures of Part 36 to cover supersonic (as well as subsonic) civil airplanes. In addition, various flight test provisions unique to the Concorde are included because of the special takeoff and approach testing considerations posed by the delta wing of that airplane.

F. AIRPORT PROPRIETORS' "LOCAL OPTION": NO CHANGE

These rules do not in any way affect the existing legal authority of airport proprietors, acting as proprietors, to exercise their "local option" to limit the use of their airports in a manner that is not unjustly discriminatory, and does not unduly burden interstate and foreign commerce. As stated in § 36.5 of Part 36, an FAA determination of compliance or noncompliance with Part 36 does not bind an airport proprietor in its determination whether an airplane is acceptable or unacceptable for operation at its airport.

G. SONIC BOOM

These rules prohibit SSTs from producing sonic booms in the United States while they are going to or from U.S. airports, even if the airplane is outside the U.S. at the time. Prior to these rules, supersonic flight was prohibited only while the airplane itself was in United States airspace.

H. CONTINUED OPERATIONS OF CONCORDE

Consistent with the provisions of these rules, FAA amendments to operations specifications of air carriers that operate Concorde may be issued without additional environmental analysis up to the numbers of total Concorde operations specified for each airport analyzed in the final environmental impact statement (EIS) for these rules. Federal issuance or amendment of operations specifications has no bearing on local airport proprietor approval of Concorde operations.

By the terms of the FAA operations specifications issued to the British Airways and Air France in April 1976, the 16-month demonstration period at Dulles Airport ended September 24, 1977. After Secretary of Transportation Brock Adams announced his decision on September 23, 1977 to issue Notice No. 77-23, the two carriers were issued amendments to their operations specifications to permit the number of Concorde operations that were originally approved on February 4, 1976 (one flight per day per carrier) to continue until the issuance of these rules. After the effective date of these rules, upon application by an air carrier, Concorde operations will be authorized at Dulles International Airport up to the numbers specified in the EIS for these rules.

The 16-month demonstration period at John F. Kennedy International Airport ("JFK"), for which two Concorde flights per day for each carrier were authorized, began on November 22, 1977. However, the issuance of these rules supersedes that authorization. Authorization of Concorde operations up to the number studied in the EIS will not require further environmental analysis.

I. CONSISTENCY WITH SAFETY

These rules regulate only the noise of SSTs. They do not dispose of airworthiness issues concerning the Concorde that are currently being evaluated under applicable airworthiness regulations. These rules are consistent with the highest degree of safety in air commerce.

J. FUTURE SSTS: PROGRESSIVE NOISE REDUCTION

With the issuance of these rules, the FAA takes the first step towards ensuring that future SSTs are subject to the same noise levels as subsonic aircraft, and are made as fully compatible with future airport environments as possible. It is anticipated that no future SST design will be type certificated without the issuance by the FAA, after full public participation, of noise regulations that are environmentally effective and consistent with the economic and technological considerations in § 611 of the Federal Aviation Act of 1958.

II. PRIOR HISTORY

These rules conclude a process that began formally with an Advance Notice of Proposed Rule Making in 1970, and has since involved three Notices of Proposed Rule Making ("NPRM"), numerous public hearings, demonstration of the Concorde at Dulles and JFK Airports, the preparation of two comprehensive environmental impact statements, and the consideration of over 11,800 comments from airport neighbors, and other concerned citizens, airport proprietors, aircraft operators, aircraft manufacturers, and Federal, State, and local governmental agencies. These comments have greatly assisted the effort to develop requirements that are balanced in their responsiveness to divergent public concerns, and are effective in terms of public relief from the noise of civil supersonic air transportation. These rules were developed over the course of a year in close consultation between Secretary of Transportation Brock Adams and FAA Administrator Langhorne Bond. The rules reflect the Secretary's responsibility for overall national transportation policy and his concern that these final rules properly take into account all aspects of that policy—including environmental, economic and international aviation considerations. The history of this regulatory action is described more fully in Notice 77-23, which is the most recent NPRM preceding these rules, 42 FR 55176 (October 13, 1977). The major events are as follows:

A. *Notice No. 70-33.* On August 4, 1970, the FAA issued Advance Notice of Proposed Rule Making No. 70-33, published in the FEDERAL REGISTER (35 FR 12555) on August 6, 1970. That notice initiated the public process of determining the nature and scope of the factors that must be considered in the development of noise ceilings for SSTs.

Notice No. 70-33 requested public comment on a number of issues and stated FAA's intent to ensure that SSTs, like subsonic airplanes, are subject to type certification standards that require the application of all economically reasonable noise reduction technology. Many public comments were received in response to this early invitation to public participation in the FAA's rule making on this matter and were considered in the adoption of these rules.

B. *Notice No. 75-15.* On February 27, 1975, EPA transmitted to FAA proposed regulations for the control and abatement of SST noise. These proposals were developed and submitted pursuant to § 611(c)(1) of the Federal Aviation Act of 1958, as amended, which provides that EPA shall submit to the FAA proposed regulations to provide such control and abatement of aircraft noise and sonic boom as EPA determines is necessary to protect the public health and welfare, and that the FAA "shall consider such proposed regulations submitted by EPA and shall within thirty days of its submission to the FAA publish the proposed regulations in a notice of proposed rule making."

In accordance with this requirement, the FAA issued Notice No. 75-15 on March 25, 1975 (published in the FEDERAL REGISTER (40 FR 14093) on March 28, 1975) containing the EPA proposals. The FAA conducted public hearings on these EPA proposals in accordance with § 611(c)(1) in Los Angeles on May 16, 1975 and in Washington, D.C. on May 22, 1975.

The 1975 EPA proposal would have required: (1) future design SSTs to meet noise standards applicable to new type subsonic airplanes; (2) existing types of supersonic airplanes (the Concorde and Russian TU-144) upon which "substantive productive effort" had not commenced before the date of the EPA Notice to meet the Stage 2 requirements of Part 36; and (3) SSTs already under production (at least nine, possibly sixteen, Concordes and an unknown number of TU-144's) to be treated separately. Public comments in response to this Notice, including hearing transcripts, have been reviewed and considered in the process of developing these rules. Insofar as certain aspects of the EPA proposals and options contained in Notice 75-15 are not adopted herein, the reasons for not adopting them are discussed in the "Notice of Decision Concerning EPA Proposals" published in this issue of the FEDERAL REGISTER.

C. *Notice No. 76-1.* On January 19, 1976, EPA submitted additional proposed regulatory language to FAA, which was published by the FAA as Notice No. 76-1 (41 FR 6070) on February 12, 1976. A public hearing was held by FAA on the proposal on April 5, 1976, in Washington, D.C. The additional EPA proposal would have prohibited any SST that does not have flight time before December 31, 1974, from operating to or from an airport in the United States unless it complies with the Stage 2 noise limits of Part 36. In issuing these rules, the FAA has considered public comments, including hearing transcripts, submitted in response to Notice 76-1.

D. *Concorde Demonstration Flights.* On application of British Airways and Air France to operate the Concorde into the United States, former Secretary of Transportation William T. Coleman, Jr., issued a decision on February 4, 1976, establishing 12-month demonstration periods for the Concorde at Dulles and JFK Airports, each followed by a 4-month evaluation period.

This decision was made following analysis of comments and testimony presented at a public hearing in Washington, D.C. on January 5, 1976. Public hearings were also held by FAA in Washington, D.C. on April 14 and 15, 1975, in New York City on April 18, 19, and 24, 1975, and in Sterling Park, Virginia on April 21, 1975, concerning the draft environmental impact statement prepared prior to the decision. This decision was reaffirmed in 1977 by Secretary of Transportation Brock Adams.

A comprehensive monitoring effort was undertaken which included the measurement of noise and emissions at Dulles and JFK and in the surrounding communities; possible sonic booms along the east coast of the United States near the planned Concorde flight tracks; low-frequency noise-induced structural vibration of buildings near Dulles and JFK; and local community response to the Concorde. The monitoring reports concerning Concorde operations at Dulles and JFK have been made available to the public, and were considered in resolving the issues presented in relation to these rules.

E. *Notice No. 77-23.* This Notice was issued on October 13, 1977, following (1) review of public comments concerning Notice Nos. 70-33, 75-15, and 76-1; (2) review of testimony and statements presented in public hearings; (3) review of environmental impact statement data concerning noise, emissions, fuel usage and other impacts; (4) review of 12 months of comprehensive monitoring reports concerning Concorde operations at Dulles; and (5) consultation with the EPA and other Federal agencies. The proposals in this Notice were substantially similar to these rules.

Following the issuance of Notice No. 77-23, three additional public hearings were held to encourage public review of these proposals in relation to the EPA proposals in Notices 75-15 and 76-1 and to assist the Secretary and the Administrator in making the final determination. For this latter purpose, the comment periods of those earlier notices were reopened.

The first of these additional public hearings was held in Washington, D.C. on December 15, 1977. Additional public hearings were held in Honolulu, on January 11, 1978, and in Los Angeles, on February 27, 1978.

III. CONSIDERATION OF PUBLIC COMMENTS

Notice 77-23 outlined, for public comment, seven factors to be considered in the decision-making process to ensure a well-founded regulatory response to the problem of SST noise. These factors are:

1. The potential environmental impacts of the Concorde, including its air quality, climatic, ozone layer, noise and vibration, and energy consumption impacts.
2. The need to maintain, to the maximum extent possible, the trend of reduced noise exposure around the nation's airports.
3. The economic and technical considerations that determine whether the proposed regulatory measures would produce discriminatory or other unfair burdens on international aviation.
4. The need to assure that U.S. regulatory measures affecting foreign air carriers and airplanes are equitable in light of the treatment that has been afforded by foreign governments to U.S. air carriers and airplanes manufactured in the United States.
5. The benefits that will result from SSTs with respect to improved international travel and communication, technological advances in aviation, and improved international relations.
6. The need to assure that domestic and foreign airplanes are treated equally by the United States, and the need to assure that the same type of treatment that has been afforded by the United States to subsonic airplanes is afforded to SSTs.
7. The need to develop regulatory measures that do not infringe upon the existing legal authority of airport proprietors to regulate noise at their airports in a non-discriminatory manner that does not impose an undue burden on interstate or foreign commerce.

Virtually all of the commenters, including the advocates of SST operations, supported the noise abatement objectives of the EPA and FAA proposals in the three notices. This was also the pattern at the public hearings. The bulk of the discussion centered around the best means of weighing this noise abatement objective against the potential technological, economic, and other impacts of regulating SST development and operations. The following discussion addresses the major issues and arguments raised by the commenters.

A. NOISE IMPACTS

By far the greatest number of comments, numbered in the thousands, concerned the noise and other environmental impacts of SST operations. Many private citizens, local citizen organizations, and national organizations concerned with environmental questions testified at the hearings and commented on the far-reaching impacts of aircraft noise on family life, on the conduct of businesses, the operation of schools and hospitals, the overall quality of life in airport neighborhoods, and the value of property around airports.

Many comments contained the urgent request that any further increases in airport noise be prohibited, including those that would result from Concorde operations. They suggested methods of doing so, ranging from a total ban to bonus payments for further noise reduction or economic penalties for operators of noisy aircraft. Several commenters urged that economic considerations be divorced from decisions concerning control of SST noise. Other commenters suggested that limited service at some airports might be permissible if strict operational restrictions were established and made mandatory at each airport. Some commenters strongly supported the night curfew as a reasonable means of permitting SST operations to exist while also preventing the most serious intrusions of SST noise into the environments of neighboring communities.

The deep public concern regarding the potential noise impacts of the Concorde and other SSTs was, in many comments, a reflection of years of annoyance and interruption of normal living patterns by the noise of subsonic aircraft.

In addition to the written comments submitted to the docket, the public hearings provided direct contact with persons who feared the noise exposure from SSTs would exacerbate the many years of subsonic aircraft noise annoyance.

The recent steady reduction in the noise levels of subsonic aircraft was cited by many persons as a reason for requiring the same kind of progress for supersonic aircraft and not permitting an increase of noise by permitting SST operations. It was urged that it is not reasonable to regard SSTs as a separate class for noise abatement purposes and that SSTs should all be required to meet rules identical with those applied to subsonic aircraft.

Other commenters argued that, since subsonic aircraft are required to reduce their noise levels to comply with Part 36 noise limits by 1985 (Subpart E of 14 C.F.R. Part 91) the exemption of the Concorde from Part 36 noise limits is contrary to the purposes of the Noise Control Act of 1972 to reduce noise and will make the noise of that airplane more obvious and troublesome as the noisiest jets are phased out of operation.

A considerable number of comments stated that the Concorde will benefit far fewer persons than it will be adversely impact. An additional aspect of many of these comments was the great concern that introduction of the Concorde would reduce property values in communities surrounding airports.

In an effort to assemble the best possible environmental information base and to assure that regulatory decisions fully respond to these public comments concerning SST noise, the FAA has prepared a comprehensive final environmental impact statement (EIS) addressing the potentially significant environmental impacts of the introduction of civil supersonic air transportation. The noise data in this EIS include the result of extensive monitoring of Concorde operations at Dulles and JFK Airports. As the EIS indicates, the recorded noise levels of the Concorde are consistent with the predicted levels set out in the Concorde Supersonic Transport Final Environmental Impact Statement issued in November, 1975, ("1975 EIS") which was used in the decision to permit temporary commercial operations at JFK and Dulles. The monitoring also confirmed that, compared to the loudest jet subsonic transports, the Concorde is twice as noisy on takeoff and approximately as loud on approach.

The following technical information is explained and analyzed in far greater detail in the EIS and in the 1975 EIS, both of which were considered in this rule making. They are available without charge from FAA headquarters and all regional offices.

On departures from Dulles the average Effective Perceived Noise Level in decibels (EPNdB) as measured for Concorde at a point under the flight path at 3.5 miles from the start of takeoff roll was 119.4 EPNdB. On approach, the average noise level as measured under the flight path for Concorde flights at one mile from runway threshold was 116.5 EPNdB.

The greatest increment in the impact of the Concorde compared to subsonic transports is its single-event noise, that is, the impact of individual flyovers. The EIS indicates that the introduction of Concorde service will extend the area within a "contour" on the ground within which the noise is 100 EPNdB or more from one individual flyover ("100 EPNdB single event contour") into areas which either have not experienced significant aircraft noise before or have not experienced this level of aircraft noise. The 100 EPNdB contour from a Concorde departure may extend 20 miles or more from the start of takeoff roll. In terms of practical effects, outdoor communication at a distance of two feet could require shouting for those persons within the 100 EPNdB single-event contour. This impact would last for the duration of the noise at this level, not more than 30 seconds per operation. Assuming normal indoor attenuation from a structure, the 100 EPNdB single-event contour indicates the areas within which there is likely to be speech interference indoors as well as outdoors. Thus, assuming average attenuation from the structure, indoor communication at two feet could require a raised voice for up to 30 seconds during a Concorde flyover as far as 20 miles away from airports served by the Concorde.

The single-event noise contours for Concorde may vary significantly in the regions beyond roughly 10 miles from the airport. Data gathered during the Concorde demonstration period at Dulles have shown that high sound levels occur at locations beneath the Concorde flight path at the time of climb power reapplication, usually when the aircraft is between 7,000 and 10,000 feet above ground level. The exact magnitude and location of this noise impact will vary from airport to airport with the flight path, the time of climb power reapplication, and the climb profile to the point of climb power reapplication.

Based on study of these departure contours, it can be expected that noise impact resulting in annoyance may occur in "spot areas" up to 25 miles from the airport. These single-event contours for the Concorde cover significantly more area than those of subsonic aircraft. These larger noise contours for the Concorde clearly distinguish it from even the loudest subsonic airplanes and are in large part the basis for the distinctive regulatory treatment afforded to the Concorde by these rules.

For each airport analyzed in the EIS, the cumulative energy noise contours, as distinguished from the single-event noise contours, are also included in the EIS and are graphically displayed as NEF (Noise Exposure Forecast) contours on maps showing land use areas with proposed flight tracks of the Concorde superimposed for illustration. In addition, these maps are available for inspection at the FAA Regional offices.

In practical terms, in assessing community reaction to aircraft noise exposure, the following interpretations of NEF values are often used:

Less than NEF 30	Essentially no complaints expected; noise may interfere with community activities.
NEF 30 to NEF 40	Individuals may complain; group action possible.
Greater than NEF 40	Repeated vigorous complaints expected; group action probable.

The impact at each airport is calculated in terms of the number of people and the land area contained within the NEF and NEF 40 contours. The NEF 30 and NEF 40 contours have been computed and their results tabulated in the EIS in the specific analysis for each airport. Each airport-specific analysis shows the noise impact with and without Concorde operations. In view of the current aircraft noise regulation, it was assumed that all subsonic aircraft will meet the Stage 2 noise limits of Part 36 in 1987. Other important fleet compliance assumptions are set forth in the EIS.

The EIS data considered in the adoption of these rules include data showing the specific impact of Concorde operation on kinds of land use, such as residential, parks and recreation, commercial, and industrial land users.

The EIS contains comprehensive noise data for 13 airports considered for potential Concorde operations through 1987. At three of these airports (Miami; Houston, and Anchorage), the population within the NEF 30 and 40 contours will be essentially the same in 1987 as in 1978, with or without Concorde operations, even though all subsonic aircraft will be required to meet Stage 2 noise limits by 1985, because of the forecast trends of increasing traffic demand and population density near the airport. At the other ten airports studied, the forecast shrinkage in the NEF 30 and 40 contours would, without the Concorde, cause a reduction in the population within these contours by 1987. Addition of the Concorde to meet its forecast traffic demand would not reverse this reduction, but would retard the rate at which the population encompassed by high NEF contours would be reduced.

The EIS also contains a detailed discussion of human response to aircraft noise. The conclusion reached by the FAA based on review of this data, in relation to the limited Concorde operations permitted by these rules, is that Concorde will not subject people to prolonged or sustained exposure to intense noise levels. In addition, there is no indication that the Concorde produces significant physiological effect. However, short of physiological effects, the noise levels generated by Concorde will have definite impact. The principal effect is expected to be increased annoyance within the NEF 30 contour. This annoyance will not merely be the result of the Concorde's noise level considered in the abstract, but will be a function of the various elements including the attitudes, judgements, and beliefs of individuals. The increased annoyance will be caused primarily by interruption of normal communications.

Regulatory Conclusion: Thorough analysis of the extensive noise impact data developed for the Concorde indicates that the Concorde's perceived loudness under the takeoff flight path is approximately double that of a B707, four times as loud as a B747, and eight times as loud as a DC-10. These comparisons confirm the need for distinctive regulatory treatment of the Concorde.

After extensive environmental analysis and monitoring and careful review of the many public comments, the FAA has determined that the impact of Concorde operations will be substantial relative to even the noisiest subsonic aircraft, and therefore that the unrestricted introduction of Concorde operations cannot be justified. Consequently, the effective limitation on numbers of Concordes that may operate in the U.S., the prohibition against operation of Concordes in the U.S. if they are modified in a manner that increases their noise, and the federal prohibition of night operations, are reasonable and essential aspect of these rules even though these restrictions are not applicable to other aircraft types.

B. IMPACTS ON AIR QUALITY

Public comments submitted to the docket expressed concern regarding the potential impact of SST emissions on air quality. As the EIS indicates, at each airport considered, the emissions associated with SST operations will have an insignificant impact on air quality. The air quality impact analysis also shows that regional impacts resulting from SST operations are expected to be very minor, even at airports where relatively large changes in airport emissions are forecast.

The percentage changes in local emissions projected for 1987 at each airport as a result of permitting Concorde flights are reflected in detail in the EIS for these rules. Forecast impacts of Concorde on air quality at the airports are based on the same aircraft fleet forecasts that were used in the noise analysis. At each airport, the aircraft emissions (carbon monoxide, hydrocarbons, and nitrogen oxides), have been calculated for the projected 1987 fleet mix for two alternate cases: (1) the fleet mix if Concorde flights are prohibited; and (2) the fleet mix if the maximum number of Concorde flights addressed in the EIS are permitted. The calculations of aircraft emissions assumed that current aircraft emissions factors remained unchanged.

During the Concorde test period at Dulles Airport there was an air quality monitoring program to determine the effect of Concorde emissions upon air quality locations at and near the airport. The pollution background was measured upwind and downwind of the airport to detect any possible effect of airport (and Concorde) emissions on a nearby community of Sterling Park, which is approximately one mile north of the airport boundary. Conventional background measurement equipment was used, and pollutant concentrations were averaged over periods of one hour. To identify emissions from a single aircraft, there were also measurements locations close to the aircraft involved, and measurements were recorded over the short time it takes for the emission plume to be transported by the wind over the monitoring stations.

Measurements of Concorde and other aircraft exhaust emissions at Dulles and nearby established that:

(1) Concorde emissions at Dulles dilute to background levels within 2,000 ft. of the aircraft.

(2) Emissions measured on the airport property could not be detected at Sterling Park even when Sterling Park was downwind from the airport.

(3) Actual Concorde operations were less polluting than had been indicated in the 1975 EIS.

Pertinent results of a recent EPA survey regarding the attainment status of each state in relation to national ambient air quality standards (43 FR 8962, March 3, 1978) are reflected in the EIS in relation to airport impacts. Most of the airports are in regions that are not presently meeting all of the national ambient air quality standards. In most cases the exceeded standard is the one for oxidants (which is influenced by the hydrocarbon and nitrogen oxide in the region's atmosphere), and in a few cases the standard for carbon monoxide is violated. Considering the attainment status of each region and the changes in regional air quality due to Concorde operations, it is clear that the maximum number of Concorde flights proposed in the EIS will not have a significant impact with respect to air quality. In fact, in the Dulles case, where predicted and measured emission levels could be compared, the impacts actually monitored were less than even the negligible impacts that were predicted for that area.

Regulatory Conclusion: With respect to public comments concerned with the emissions of SSTs, FAA's monitoring and analysis indicate that, while under the "worst case", addition of a large number of Concorde operations at an airport could produce some increase in carbon monoxide and hydrocarbons, the changes would be small relative to total emissions in the air quality control region. Considering the SST in relation to other emissions sources affecting the air quality regions, and based on the detailed assessment of the probable absolute contribution of the SST to these other sources, the FAA concludes that the limited Concorde operations permitted under these rules will have no significant impact on air quality.

C. HIGH ALTITUDE IMPACTS

The potential impact of SSTs on stratospheric ozone was cited as a potential problem in public comments in response to all regulatory proposals issued by the FAA since Notice 70-33. This issue has concerned the public and the governments of several nations for many years. The long history of governmental concern and study of this issue is outlined in the EIS.

Concern over the impact of the Concorde's emissions on the stratosphere centers on two issues: (1) the possible reduction of the amount of atmospheric ozone and the likelihood of a resulting increase in the incidence of skin cancer (due to increased ultraviolet radiation brought about by reduced ozone); and (2) the possible effect on the earth's climate.

1. *Ozone Reduction.* With respect to the probability of ozone reduction by SSTs, the latest and best available data indicate that data derived from earlier programs substantially overestimated this effect, and that it is questionable whether SST operations would reduce ozone at all. It is equally doubtful, therefore, that SST operations would have any effect whatsoever on the incidence of skin cancer. The FAA study of upper atmosphere effects of SST operations is continuing to further substantiate these current findings in the EIS.

The National Academy of Sciences recently submitted a report to the Congress entitled "Response to the Ozone Protection Sections of the Clean Air Act Amendments of 1977: An Interim Report", by the National Research Council Committee on the Impacts of Stratospheric Change. This report supports these recent FAA findings. The report states that "the estimated impact of NOx (nitrogen oxides) from the exhausts of SSTs and other high-flying aircraft on stratospheric ozone is now quite small, almost certainly not a matter of immediate concern." Ample time exists for additional tests and measurements and to continue the FAA-sponsored High Altitude Pollution Program to reduce the remaining uncertainties and further analyze these new findings.

2. *Climate.* The second concern regarding SST impacts on the upper atmosphere involved the potential changes in the earth's climate. The theory supporting atmosphere temperature changes from SST operations is outlined in the EIS. Although simultaneous injection of sulfur dioxide, water vapor, and nitrogen oxides into the upper atmosphere might affect atmospheric temperatures, it is concluded in the EIS that the possible effect of the Concorde on the mean surface temperature is insignificant. Estimates on the likely changes in associated climatic variables, such as rainfall are not possible at the present time, but these correlative effects are also believed to be insignificant.

Regulatory Conclusion: The FAA believes that research should be continued into the possible impacts of SST operation on high altitude ozone, incidence of cancer, mean surface temperature, and climatic changes. However, based on the studies accomplished to date, it is concluded that the SST operations permitted by these rules will have no significant upper atmosphere effects. No reason for delaying the adoption of the amendment can be validly attributable to upper atmospheric impacts.

D. FUEL USE

Many public comments submitted to the docket and in public hearings expressed concern that the Concorde, and possibly other SSTs, would be a relatively inefficient consumer of precious petroleum fuels.

The Concorde uses approximately two to three times as much fuel per seat mile as subsonic airplanes. Although it is expected that future design SSTs will be more fuel-efficient than current SSTs, fuel efficiency is generally inversely proportional to speed, and SSTs will always require more fuel per seat-mile or ton-mile than subsonic aircraft of comparable size.

The national interest in petroleum conservation is of great concern. This is true not only because of the need for petroleum products, but also because aviation fuel, which is the lifeblood of the national air transportation system, is exclusively petroleum based. Petroleum is the only fuel which will be used in aviation for the foreseeable future. The various modes of transportation use approximately 60 percent of the total petroleum consumed in the United States, of which approximately 10 percent is consumed by all aviation users.

A comprehensive national regulatory framework exists for the purpose of fuel allocation. The Department of Energy regulates the allocation of petroleum among all users, not merely transportation. 10 CFR Part 211, entitled "Mandatory Petroleum Allocation Regulations" contains a broad framework for apportioning fuel not only among aviation users and all other users, but also among aviation users. Those regulations specifically address and provide for the quantity of fuel allocations. Fuel used for supersonic as well as subsonic aircraft is covered by those rules.

Regulatory Conclusion: The best available information indicates that SSTs may use several times the fuel of subsonic jets per seat-mile or ton-mile. However, the FAA does not have authority to prohibit SST operations for that reason alone.

E. LOW FREQUENCY NOISE/VIBRATION

As noted by several commenters, another aspect of the noise generated by Concorde operation is that the low frequency content of an airplane noise signature is important because these frequencies may induce vibrations in structures near the flight path. Some comments suggested that Concorde operations would increase the vibration impact on residences that are now experiencing some vibration from subsonic aircraft operations.

The low frequency content of the Concorde's engines generates more energy in the low frequency band than do subsonic jet aircraft engines. The EIS concludes that a greater amount of sound energy at low frequencies in the Concorde's noise spectrum could induce correspondingly greater amounts of vibration in nearby structures than is the case for subsonic airplanes. However, the analytical studies used for the Concorde EIS and verified by NASA studies during the Dulles and JFK monitoring programs show that structures near airports are not endangered by noise-induced vibrations from Concorde.

More particularly, the following conclusions enumerated in the EIS are based on vibration response measurements at Dulles and JFK International Airports.

(1) The vibration response of windows, walls, and floors is directly proportional to the sound pressure level of the aircraft noise and virtually independent of aircraft type.

(2) Concorde operations resulted in higher noise levels and, consequently, higher vibration levels than subsonic jet aircraft.

(3) Certain normal household events such as door and window closing resulted in vibration levels equal to or higher than those associated with Concorde operations.

(4) Comparison of the response levels with structural damage criteria shows the measured vibration levels to be less than those expected to cause damage such as cracked plaster or broken windows.

(5) All measurements were below the International Standard Organization's threshold of perception.

(6) Most measurements were close to or below the International Standard Organization's proposed "minimum complaint level."

Regulatory Conclusion: The difference in vibration impact between Concorde and subsonic aircraft is not considered to be significant. Low frequency vibration effects are therefore not forecast to be significantly greater for SST operations at given airports than the vibration effects caused by subsonic airplanes at those airports.

F. SONIC BOOM

1. *Extension of Current Rule.*

The amendment of the sonic boom rule was not the subject of much comment. These rules extend the current sonic boom rule (§ 91.55) to civil aircraft outside United States airspace but operating to or from an airport in the United States. This extends the scope of sonic boom protective policies previously established by the FAA in 1973.

The problem addressed by these rules is that the shock wave generated by supersonic flight can extend for many miles from the airplane. The monitoring of sonic booms from Concordes operating to and from Dulles and the results of that effort, are described more fully in Notice 77-23 and in the monitoring reports contained in the docket. No pattern of sonic boom was experienced. However, as stated in the Notice, one sonic boom (with no reported community reaction) was recorded by the Shark River station. It is estimated that the arriving airplane was 19 miles from the New Jersey coast. Since the airplane was not in the United States, no violation of § 91.55 was involved. The operator, however, changed its flight procedures for future flights to ensure that supersonic speed is not attained or maintained closer than 25 miles from the coast. If the number of supersonic operators requesting approval to operate to or from U.S. airports increases, there will be a need for positive requirements to prevent a repetition of the Shark River sonic boom. These rules accomplish this result.

One comment suggested that these rules be further expanded to cover the flight of SSTs that do not enter the U.S. The FAA recognizes that there is a potential that an SST, travelling close to the U.S., may create a sonic boom in the U.S. but believes that the problem is best addressed, initially, by the International Civil Aviation Organization (ICAO). In this regard, the ICAO Air Navigation Commission on November 21, 1974, recommended the following amendment to be added to ICAO Annex 2, *Rules of the Air:*

> 3.1.9—Sonic Boom. An aircraft when operating over the high seas adjacent to the territory of a State which has decided and duly published its decision to protect its territory from adverse effects of sonic boom shall not be flown in a manner that will cause such adverse effects.

Although ICAO has not yet completed final approval of its proposed amendment, the proposal shows recognition of the problem and the importance of publishing a clear decision to protect U.S. territory from civil sonic booms wherever generated. Consistent with the ICAO proposed amendment, these rules constitute and duly publish the decision of the United States to protect its territory from the adverse effects of sonic boom from SSTs operating outside the U.S.

2. *Secondary Effects of Sonic Boom.*

Since the issuance of Notice 77-23, sonic boom monitoring has detected very low energy, long-rise-time pressure events that sound much like the faint, muffled rumble of distant thunder but do not have the startle effects of sonic booms. These events, while they have on occasion been called "secondary sonic booms", are not considered to be sonic booms, since they do not have the rapid pressure rise and sharp audible characteristics of the sonic boom pressure signature. Moreover, these secondary effects have none of the potential that a sonic boom has for adversely affecting the environment. This secondary pressure phenomenon appears to reach the surface, with very low energy, after being refracted (bent) by the atmosphere, possibly over distances much greater than the distance that a sonic boom travels to reach the surface. The FAA is continuing its monitoring to determine whether SST flight path adjustment can avoid even this impact.

G. IMPACTS ON PASSENGERS

The decision to adopt these rules involved an analysis of potential environmental impacts associated with the effects on passengers of the speed and high cruising altitude of SSTs. The detailed analysis in the EIS is summarized here.

1. *Jet Lag*

"Jet lag" refers to the effect upon passengers who cross several time zones quickly. Since SSTs travel more than twice as fast as subsonic transports, more time zones can be traversed in a given period of time and jet lag effects may be increased. On the other hand, this high speed also reduces travel fatigue, which is related to the length of the flight time. Since SSTs reduce flight times by approximately 50 percent, the travel fatigue will be greatly diminished for SST passengers. The net result of increased jet lag and decreased travel fatigue appears to be that there will be no overall adverse effects on passengers.

2. *Transmission of Diseases*

Disinfection rules to prevent the transmission of disease by planes have been developed by the World Health Organization for international air transportation. These rules are implemented by ICAO.

The reduced flight time of SSTs is concluded not to create a problem for health authorities in the detection of passenger-borne diseases. The varying incubation times of passenger-borne diseases have not presented a problem on Concorde flights to date, nor on subsonic international flights ranging from less than one hour flying time to more than 15 hours flying time.

3. *Cosmic Radiation*

As discussed in more detail in the EIS, cosmic radiation is always present in the atmosphere and is encountered in subsonic and supersonic flight. Cosmic radiation rates vary with altitude. At the cruise altitudes of SSTs, the rates were found to be approximately double those at subsonic aircraft cruise altitudes. However, since SST flight times are approximately half of those of subsonic aircraft, the total dose per flight is about the same for SST passengers and subsonic aircraft passengers. The total dose is the significant factor in determining the impact on passengers. This dose is approximately the same as the impact on subsonic passengers traveling the same distance and is concluded, as for subsonic passengers, not to be harmful.

4. *Solar Flares*

A potential radiation hazard at SST altitudes is caused by solar flare radiation. On rare, unpredictable occasions—there have been three since 1956—the radiation at SST altitudes from a solar flare may reach levels considered sufficiently high to warrant reducing the flight altitude in order to increase shielding by the atmosphere. It is expected that SSTs will carry radiation monitoring devices that measure the radiation rate and warn the pilot during a solar proton event which precedes a solar radiation increase from a solar flare, although such devices are not presently required. When this warning occurs, the pilot can descend to flight levels that assure safety.

Regulatory Conclusion: Based on a review of public comments and other data, potential impacts on SST passengers are not sufficient to warrant modification of the terms of these rules.

H. ECONOMIC AND TECHNOLOGICAL CONSIDERATIONS

As discussed above, the major portion of the comments presented at the public hearings and submitted to the rules docket concerned the issue of whether SSTs, particularly the first-generation Concordes, should be required to comply with the noise limits of Part 36 that were originally applied to new subsonic turbojet designs in 1969. (Those noise limits are also referred to as "Stage 2"). The environmental desirability of this objective was agreed to by virtually all who commented, including the manufacturers and operators of the Concorde. Considering only the noise abatement result of such a restriction, EPA and the FAA also agree that the regulatory response would be simple: all SSTs would be banned unless they meet Part 36.

However, as pointed out in Notice 77-23, § 611(d)(4) of the Federal Aviation Act requires that the FAA, in prescribing and amending standards and regulations under § 611, shall

> "Consider whether any proposed standard or regulation is economically reasonable, technologically practicable, and appropriate for the particular type of aircraft, aircraft engine, appliance, or certificate to which it will apply."

The FAA is thus specifically required, by its primary noise abatement authority, to consider the economic and technological consequences of noise regulations as they are related to particular aircraft types. This requisite balancing of environmental, technological and economic values is also part of the National Environmental Policy Act of 1969 ("NEPA"). NEPA, while requiring awareness of the environmental consequences of major actions (§ 102(2)(C)), states that those factors are to be given appropriate consideration "along with economic and technological considerations" (§ 102(2)(B)). The Declaration of National Environmental Policy (§ 101) points out the need to maintain the "conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans". The FAA believes that these statutes contemplate a reasoned consideration and balancing of environmental, economic and technological factors in decision-making.

The FAA has reviewed the voluminous technological and economic data submitted in response to Notices 70-33, 75-15, 76-1 and 77-23, in relation to the noise abatement objectives of those proposals. The FAA, after consultation with the Secretary of Transportation and EPA, is convinced that, of all the proposals and options studied to date, these rules provide the most appropriate result in terms of balancing all of the myriad of factors.

In order to outline the economic and technological relationship between SST noise and SST airframe and engine design and operations, the discussion is in two parts: Concorde design factors and future SST designs.

1. *Concorde Design.*

Extensive and detailed comments were submitted concerning the impact of the several EPA and FAA regulatory proposals on the Concorde. Based upon this information, it is apparent that a Part 36 Stage 2 noise limit on the Concorde would be tantamount to a ban of the Concorde from the United States.

The most effective use of technology to achieve maximum noise control occurs in the design and development of new aircraft types. Application of basic design principles and acoustical treatment for the control of noise can be most effectively planned when they are integrated into the total engine-airframe design from the beginning. From a time-sequencing point of view, the Concorde type design, as a total engineering concept, was "frozen" several years before the FAA received its first authority to control the design of aircraft for noise purposes (Public Law 90-411, 82 Stat. 389, July 21, 1968).

In accordance with U.S. type certification procedures, engine selection, a vital determinant of performance and, of course, noise, was made prior to the application for a U.S. type certificate. The application for a U.S. type certificate was made in 1965. Construction of two prototype Concordes began in February, 1965. The first of these, Concorde 001, was rolled out in December 1967, underwent engine tests in early 1968, and had its first flight on March 2, 1969.

In view of this chronology, the question facing the FAA with respect to Concorde noise is not how to incorporate acoustically effective features into the basic Concorde design, but whether refinements in the final design might be effective. Review of Concorde manufacturing data indicates that modifications to the airframe and engines might achieve noise reductions, but not nearly sufficient to comply with FAR Part 36 Stage 2 standards. Airframe changes, such as enlarging the wing tips and improving the lift-to-drag ratio by altering the drooped leading edges along the whole wing span, do not produce significant noise reduction. Replacing the present engine with a turbofan power plant would generally increase the mass airflow and decrease the exhaust gas velocity, which would reduce perceived noise; however, it would also change performance characteristics in relation to the basic aircraft design. In short, replacing the present engine of the aircraft would constitute a major aircraft design change. Additionally, there is no existing engine technology which would provide supersonic flight capability and concurrently reduce noise.

The conclusion drawn from these data is that it is neither technologically practicable nor economically reasonable to require that the Concorde be altered to comply with the Stage 2 noise limits of Part 36 at this time.

Another question under § 611(b)(2) is whether additional noise reduction might be achieved during type certification. That section provides that the Administrator of the FAA—

> ". . . shall not issue an original type certificate . . . for any aircraft for which substantial noise abatement can be achieved by prescribing standards and regulations in accordance with this section, unless he shall have prescribed standards and regulations in accordance with this section which apply to such aircraft and which protect the public from aircraft noise and sonic boom consistent with the considerations listed in subsection (d)."

The Concorde cannot now comply with the current noise limits for subsonic aircraft. The above-cited section requires an investigation of the noise reduction potential of the

Concorde consistent with the considerations in § 611(d)(4). The economic and technological considerations prescribed by § 611(d)(4) are in terms of a standard that is "appropriate for the particular type of aircraft . . . to which it will apply." These rules require a determination during type certification of the Concorde that its noise levels are "reduced to the lowest levels that are economically reasonable, technologically practicable, and appropriate for the Concorde type design."

It is a fundamental requirement of aircraft engine design that the velocity of the exhaust gas exiting the engine must be much higher than the forward speed of the aircraft. This requirement makes turbojet engines generally more suitable for airplanes like the Concorde than generally quieter turbofan engines because of the lower exhaust gas velocity in turbofan engines. Since the Concorde SST is designed to fly at between two and three times the speed of subsonic jet aircraft, the existing technology does not support the use of turbofan engines. Thus, for the same reasons that the original Concorde design could not be made quieter, the FAA concludes that the initial Concorde design cannot now be modified to further reduce noise levels.

As the Concorde development program progressed, some design changes with a potential to reduce noise were studied. These included:

(a) The use of partial displacement of the thrust reverser buckets to minimize sideline noise;

(b) The use of retractable spade silencers to minimize flyover noise; and

(c) The development of an engine control system to permit the largest practical nozzle area for the takeoff and landing conditions to minimize exhaust gas velocity.

In March and July 1973, noise flight tests were conducted using a Concorde equipped with these devices. The results were disappointing in that no appreciable in-flight noise reduction was provided by either method (a) or (b). The development of the propulsive nozzle control system, however, was effective both in the reduced power takeoff flyover and, to a greater extent, in the approach flyover. Following these tests, the spade silencers and use of the partial deflection of the thrust reverser buckets were deleted from the production Concorde but the nozzle area control schedule was modified to the operationally acceptable standard and incorporated on the production Concorde.

In addition to these design efforts, considerable work was carried out to obtain the best aircraft operating techniques to minimize the noise impact. The techniques which result in reduced noise levels include power cutback after takeoff, decelerating approach, and adjustment of ground track over less populated areas. All three of these techniques produce a significant noise reduction and are being utilized.

Regulatory Conclusion: As demonstrated during operations at Dulles and JFK Airports, power reduction on takeoff, decelerated approach techniques, and ground track adjustment can reduce the noise impact. In terms of design noise reduction measures, the regulatory conclusion under § 611(b)(2) of the Act is that no further substantial noise reductions can presently be achieved for the initial Concorde design by the adoption of specific standards. The noise levels currently generated by the Concorde will be the type certification noise levels for that airplane under the general, qualitative provision of § 36.301(b), drawn from the corresponding language of § 611(d)(4) of the Act.

2. *Future Design SSTs.*

These rules require all SSTs operating in the United States, other than Concordes with flight time before January 1, 1980, to comply with the Stage 2 noise limits of Part 36 in order to operate in the United States. This decision is based upon a review of the economic and technological implications of this requirement over the long term, weighed against the potentially serious long term environmental impacts of an indefinite postponement of such a requirement.

With regard to the expected noise levels of future design SSTs, NASA has sponsored extensive work to define technological improvements that would be required to create an economically viable and environmentally acceptable advanced design SST. These theoretical studies have been based on aerodynamics, propulsion, structures, controls, and noise suppression technologies which, while not yet established or demonstrated, are assumed to be available within the next 5 to 10 years. Aircraft employing these technologies would not be expected to enter commercial service in less than 15 to 20 years.

Preliminary studies in both the United States and Europe indicate that the payload capacity could be significantly improved for a second generation SST by the use of advanced technology and design, and choice of optimum powerplant. Operating costs could also be greatly improved over the first-generation SST. Unless noise reduction features are incorporated into an SST design from the initial stages, it may be necessary to add equipment or sound absorbing material for noise control purposes which could reduce the payload, increase operating costs, and affect the commercial viability of the airplane. Thus, noise must be a major design constraint from the beginning, in order to be effectively controlled during certification.

A further constraint on the evolution of a satisfactory second-generation SST will be the retention of a proper balance between the subsonic and supersonic capabilities of the design so that mission flexibility within a route structure is not compromised.

Future SSTs must meet flexible performance requirements and maintain environmental acceptability. These, in turn, create major problems for the propulsion system which must accommodate two distinct modes of operation: (1) a high airflow, low exhaust gas velocity turbofan-like mode for low noise takeoff and efficient subsonic cruise; and (2) a high exhaust gas velocity turbojet-like mode for supersonic cruise.

The environmental requirements of future supersonic engines accommodating two distinct modes of operation have led to the technological innovation called multi- or variable-cycle engines (VCE). The variable cycle engine concepts show an inherent noise attenuation in small-scale static tests.

However, an ideal engine configuration for subsonic operation would reduce performance at supersonic cruise. A compromise design may therefore be considered, that is not optimum for either subsonic or supersonic flight. The rationale for the VCE, then, is its potential ability to provide a better performance match at the various operating conditions while also satisfying environmental constraints.

There are other concepts for dual-mode (subsonic/supersonic) engines that are under consideration for advanced SSTs. However, none of the dual-mode concepts has been developed and tested. Recent study results indicate that noise levels at least as low as or even a few decibels lower than Stage 2 noise limits of Part 36 may become technically achievable by advanced technology SSTs. FAA recognizes that, as performance specifications are made more demanding (such as larger payload and expanded range), reduced noise levels become more difficult to attain.

FAA recognizes that, in the absence of a regulatory noise limit, there is a concern that noise attenuation goals may be relaxed in order to meet performance objectives. Balancing considerations of economic reasonableness and technological practicability and the need to protect the public health and welfare under § 611 of the Federal Aviation Act, the FAA has concluded that the Stage 2 noise limits should be applied to the operation of future SST types, in order to provide a firm limit on the escalation of SST noise while research defines the potential for applying still further noise reductions at the type certification stage. The FAA, however, fully expects to promulgate stricter standards before such future SST types may enter into service.

Several comments requested that these rules require future SST types to meet the same noise rules, at any given point in time, as are applied to subsonic aircraft at that time. The FAA's goal is not to certificate or permit to operate in the United States any future design SST that does not meet standards then applicable to subsonic airplanes. If it is technologically infeasible to produce such an airplane, the FAA will consider setting a less stringent standard but in no event will that standard be less stringent than the noise levels of Stage 2. However, the FAA does not believe that it would be appropriate to establish at this time a permanent future linkage between supersonic and subsonic noise levels below the Stage 2 noise limits. Such a policy might ignore the unique economic and technological factors affecting supersonic flight. Permanent linkage might also retard the future noise reduction progress of the total air transportation fleet to that reasonably attainable by SSTs.

As stated in the Notice of Decision accompanying these rules, the FAA is currently addressing the long-term application of subsonic noise standards to supersonic aircraft in its evaluation of EPA proposals in Notice No. 76-22, published in the FEDERAL REGISTER (41 FR 47358) on October 28, 1976. In the meantime, future SSTs will be held to at least Stage 2 noise limits by the operating provisions of these rules (see § 91.311). American carriers could not operate such airplanes in any event until a certification noise rule is promulgated.

With regard to requiring achievement of levels more stringent than Stage 2, conceptual designs that theoretically may achieve lower noise levels have not yet been demonstrated. An ICAO Working Group is assessing the current status of SST noise control technology and should identify the availability of that technology for derived versions, newly-manufactured and future SST airplanes. Using data on available technology, the SST design studies currently in progress will identify technically achievable noise levels for the time periods 1980–1985 and beyond 1985. These technical studies will identify projected SST noise levels for incorporation in the proposed standards and in the associated test and measurement techniques for type certification. The studies will contribute to an economic assessment of proposed standards which will also be assessed for consistency with the protection of the health and welfare of airport neighbors.

Regulatory Conclusion: In view of the above, the FAA has concluded that it does not have adequate technical information at this time to use as a basis for establishing type certification noise standards for future design SSTs. There is no known active program to construct a second-generation SST. The FAA intends to monitor on-going research closely and will propose appropriately lower standards as soon as there is sufficient technological information to support an informed consideration of economic and technological factors under § 611(d)(4) of the Act. Operationally, however, a firm commitment to noise limits for future design SSTs at least as quiet as the Stage 2 limits is justified while this research continues.

I. NONDISCRIMINATORY TREATMENT OF CONCORDE

Many of the comments related to whether the rules are discriminatory in their treatment of SSTs as compared with subsonic transports. One of the major concerns is that the SST noise rules not be unjustly discriminatory, be consistent with basic principles of fairness, and be in agreement with the international obligations of the United States under the Chicago Convention and the bilateral civil aviation agreements. This requires that unjust discrimination in the treatment afforded by the noise rules to SSTs in comparison with subsonic airplanes be avoided.

Comments submitted in response to Notice 77-23 stated that these rules would discriminate against the Concorde, while other comments state that the rules would discriminate in favor of the Concorde. Before addressing these comments, it is necessary to set forth two elements of the analytical framework which is used to determine whether unjust discrimination will result.

First, a prohibition against unjust discrimination is not a prohibition against any and all differences in treatment; it is a prohibition against any difference in treatment for which there is no rational and reasonable basis. Indeed, a blanket requirement of identical treatment for all airplanes in all situations would in itself be arbitrary and discriminatory because it fails to consider differences in airplane types—i.e., jet airplanes are different from airplanes with reciprocating engines, big airplanes are different from small airplanes, and SSTs are different from subsonic airplanes. Thus, the principle that unjust discrimination be avoided has been applied in this rule making by assuring that differences in treatment between SSTs and subsonic airplanes are rationally and reasonably related to the differences between SSTs and subsonic airplanes.

Second, as advances in technology have led to quieter airplanes, the reasonable expectations of the public concerning airplane noise have moved in the direction of demanding quieter airplanes. These expectations have, in turn, helped to force further advances in technology to produce quieter airplanes. Within this ever-changing context, it is not possible to establish permanent airplane noise limits. For this reason, the FAA has promulgated increasingly stringent airplane noise standards. Consequently, remedies considered to be adequate in relation to a given level of noise years ago are considered less acceptable today. This does not mean that today's airplanes are being discriminated against because today's remedies are farther reaching than the remedies of years ago;

it merely reflects the development of technology and growing demand of the public for quieter airplanes and for a quieter airport environment.

The public comments from supporters of the Concorde were largely to the effect that the noise rules would discriminate against SSTs generally, and therefore against the Concorde in particular.

Some of the commenters stated that the FAA is imposing a "manufacturing cutoff date" which is both arbitrary and irrational because a Concorde manufactured in 1981 may be quieter than a Concorde manufactured in 1979. These comments assert that the more sensible method of limiting Concorde noise is the imposition of a limit on the number of Concorde operations in the U.S.

While it is true that an earlier Concorde might be louder than a later Concorde, it is not true that the 1980 date established by these rules is a manufacturing cutoff date, nor is that date arbitrary or irrational. Although a limit on the number of Concorde operations in the U.S. would help to control the noise impact of Concorde, the use of a date after which subsequently manufactured Concordes must meet Stage 2 noise limits in order to operate in the U.S. avoids several major problems inherent in the use of an operations limit.

First, a limit on the number of Concorde operations in the U.S. would have to be applied either as a national total or as an airport-by-airport limit within the national total. The creation of a regulatory framework which would require the FAA to parcel out Concorde operations among particular airports and carriers would interfere with the effectiveness of the airport proprietor's local option authority to establish nondiscriminatory noise measures which do not unduly burden commerce. This would also put the FAA in the business of deciding airport levels of service, which is a matter reserved to local airport authorities. Moreover, the establishment of airport-by-airport limits would be contrary to the principles of open competition in air transportation that this Administration has espoused, both for domestic and foreign commercial aviation. A national limit, on the other hand, would allow Concorde operators to concentrate all of their operations at one or two U.S. airports, to the disproportionate detriment of the neighbors of those airports, to a far greater extent than if only the first 16 Concordes were allowed to operate in the U.S. Moreover, as the number of Concorde operations approached the national limit, it might be necessary to revert to an airport-by-airport allocation, with all of its attendant pitfalls. A limit based on when the airplane was manufactured keeps the FAA out of the position of having to interfere in either the operational decisions of airport proprietors or in the management decisions of individual air carriers.

Second, adopting an operations number limit could place the U.S. in a position that is contrary to its international obligations. When the number of Concorde operations reached the limit, the FAA would either have to prorate the operations within the total or deny further applications. Proration would be contrary to the well-known U.S. opposition to quotas or frequency or capacity controls on international operations. On the other hand, limitation to the first Concorde operators which seek to operate in the U.S. might be contrary to our Chicago Convention obligation to apply U.S. laws and regulations uniformly without distinction as to nationality and with our obligation under bilateral agreements not to restrict unilaterally the frequency or capacity of foreign air carrier operations into the U.S.

Third, a limit on the number of operations would not provide the well-defined economic incentive to the manufacturer to create quieter airplanes, but would weaken the finality and clarity that is established by the cutoff date.

Some of the commenters stated that no nation should unilaterally impose a noise standard on airplanes in international commerce. The U.S. has consistently agreed with this position and is currently working through ICAO to develop a uniform international approach to the problem of SST noise. However, until such international agreement is reached, the FAA has an obligation to protect U.S. citizens from the uniquely severe noise impacts of the Concorde, as discussed in more detail above and in the EIS.

Some commenters also stated that no nation has ever imposed a noise standard upon subsonic airplanes for which compliance was not economically practicable and technologically feasible. The FAA believes that the higher noise levels of the Concorde are a valid basis for the noise-related limitations imposed by these rules. Moreover, these rules reflect the need to continue the trend towards quieter airport environments, the increasing technological capability to produce quieter airport environments, and the increasingly lower tolerance for airplane noise. Finally, to the extent the British and French have themselves forecast a need for only 16 Concordes, which these rules will allow, the weight of the argument that these rules impose practically unattainable requirements upon Concordes produced after January 1, 1980, diminishes substantially.

A few commenters stated that the U.S. has never imposed a nationwide curfew in relation to subsonic airplanes. This curfew is justified primarily on the basis of the significantly higher single-event noise impact of the Concorde as compared with subsonic transports, as discussed in detail in the EIS. In addition, the night curfew is an important condition upon the privilege of operating the Concorde in the U.S. while subsonic airplanes are being brought into compliance with Part 36.

Some commenters stated that these rules prohibit modifications of the Concorde which would make it louder, while the manufacturers of subsonic transports are not prohibited from introducing advancements which increase the noise. In fact, so far as FAA approval of type design changes is concerned, while subsonic airplanes which meet Stage 2 standards may be modified if the modified airplane continues to meet Stage 2 standards, subsonic airplanes which have not been shown to meet Stage 2 may not be made louder. Similarly, SSTs which do not meet Stage 2 noise standards may not be made louder. The FAA is, by these rules, effectively imposing the same acoustical change requirements upon the Concorde as are applicable to any subsonic airplane which has not been shown to meet Stage 2 noise levels.

A few commenters stated that these rules fail to consider the unique aspects of the Concorde which could be used in operation to decrease the noise impact. In particular, the decelerating approach, which the Concorde can make, creates less noise than a constant speed approach, but only the constant speed approach is permitted under the closely controlled noise measurement provisions of Part 36. These procedures of Part 36 are intended to ensure that, for comparison purposes, all aircraft are flown the same way during certification. While the decelerating approach is used in Concorde operations, it is not part of the noise testing procedures of Part 36. As noise measurement techniques and operational practices become increasingly sophisticated, differences in flight characteristics can more appropriately be taken into account; but until such sophistication becomes available, it is necessary to use the same Part 36 measuring procedures for all airplanes.

Many commenters argued that the noise rule discriminates in favor of Concorde because operators of many subsonic transports are required to retrofit or replace their airplanes for noise compliance, while the initial Concordes are being allowed to operate in the U.S. at their current noise level, and are not now subject to the 1985 FAR 36 compliance date. This argument fails to recognize that the FAA has chosen to implement its noise reduction program as a *phased* program. An examination of this phased program at any point in time prior to completion of the entire program leads to the appearance of unequal treatment because, by definition, the phasing causes the different aspects of the program to be at different stages of completion at any point in time. The Part 36 requirements for subsonic airplanes of new design were imposed in 1969; in 1973 the requirements were extended to newly manufactured airplanes, irrespective of their date of application for a type certificate; and in 1976 the requirements were extended to certain subsonic airplanes, irrespective of the date of their manufacture or their date of application for a type certificate. An analysis of this process in 1971 could have led to the conclusion that the rule then discriminated in favor of airplanes for which type certification had been sought before the cutoff date, while such an analysis today would lead to the conclusion that the rule presently discriminates in favor of aircraft not manufactured after 1973. However, in 1985, after the phasing has been completed for subsonic airplanes, *all* subsonic airplanes will be subject to the same noise standards. Thus, it is apparent that a phased program should be viewed in its entirety for comparative purposes rather than at any point in time before the phasing has been completed. With respect to Concorde and SSTs generally, these rules apply the same procedures and concepts as were applied to subsonics. These rules cannot be compared in their present stage to the later stages of the phasing in the subsonic noise rule.

Several commenters also stated that the rules discriminate in favor of the Concorde by permanently excepting those manufactured before January 1, 1980, while subsonic airplanes were only grandfathered temporarily. This assertion is incorrect because there is no commitment to grandfather the Concorde permanently. If operational compliance by the excepted Concordes later becomes technologically practicable and economically reasonable, they too, will be required to meet appropriate noise standards. However, just as the timing for the operational cutoff date was not specified for noncomplying subsonics when the manufacturing cutoff was imposed, for subsonic airplanes, it is not known at this time when an operational cutoff date will be appropriate for the excepted Concordes.

J. INTERNATIONAL FAIRNESS

Most of the public comments relating to the international obligations of the U.S. were from persons who questioned the fairness of these rules as applied to international transportation.

Some of the commenters alleged that these rules are contrary to longstanding international agreements and that these rules stifle the introduction of new technology by another country and, by limiting its market, could limit the production of airplanes by another country, which is unprecedented.

With respect to the authority to promulgate these noise rules while international discussions continue, the preamble of Notice 77-23 notes that the applicable international agreements which define the obligations of the U.S. in this respect are the Chicago Convention, and the bilateral air services agreements between the U.S. and Great Britain, and between the U.S. and France. These agreements, taken together, recognize the authority of the participating countries to establish uniform, nondiscriminatory noise rules if the failure to establish such rules would produce a result that is inconsistent with the need of the participating country to protect its environment. The discussion of public comments relating to the treatment of subsonic transports vs. SSTs demonstrates that these rules are nondiscriminatory. The discussion of the major policy underlying these rules indicates that these rules are necessary in order to produce a result that meets the need of the U.S. to protect its environment.

With respect to whether the promulgation of these rules is unprecedented, it is appropriate to compare the stated intention of the U.S. to promulgate subsonic transport noise operational standards if ICAO does not do so promptly. In this sense, the treatment of SSTs and subsonic transports is quite similar, and the noise standards in these rules are not unknown to international air transportation. In addition, U.S. noise operating rules are applied to foreign subsonic transports. The noise abatement operating provisions of § 91.87 of 14 CFR Part 91 are an example.

Some commenters stated that the U.S. should await the results of ICAO's efforts in promulgating SST noise standards, in order to assure international fairness and in order not to prejudice ICAO's efforts. More particularly, the comments refer to ICAO Resolution A22-12, which "urges States to refrain from unilateral measures that would be harmful to the development of international civil aviation." In response, it is noted that ICAO Resolution A22-14 specifically recognizes the possible need for unilateral treatment of SSTs by urging all governments to use "noise levels applicable to subsonic jet aeroplanes . . . as the guiding principles for the acceptance of supersonic transport aeroplanes *until such time as Standards and Recommended Practices for the noise certification of supersonic civil aircraft have been adopted by ICAO*" (emphasis added). In accordance with Resolution A22-14, the intent is stated in these rules to use the subsonic noise standards as the ultimate goal, the "guiding principles," for SST noise standards until ICAO adopts SST noise standards.

With respect to the urging in Resolution A22-12 against unilateral measures which ". . . would be harmful to the development of international civil aviation . . ." it is noted that these rules will allow the operation into the U.S. of the first 16 Concordes. Inasmuch as this is the total number of Concordes which the British and French are estimating they will manufacture, these rules do not harm the development of international civil aviation.

One commenter noted that these noise rules are inconsistent with Working Paper 54, submitted by the U.S. to ICAO, which seeks to encourage nations to work with other nations in establishing noise rules. This comment overlooks the fact that Working Paper 54, which was adopted as ICAO Resolution A22-15, relates to *subsonic* noise rules and reflects the urging of the U.S. that other nations join with the U.S. to establish through ICAO international subsonic noise standards for inservice subsonic airplanes in order to avoid the need for the U.S. to extend its 1985 domestic operating cutoff date to subsonic transports in international service.

Some commenters noted that even if the U.S. imposed subsonic noise standards on all Concordes (which, at this time, these rules do not) such an imposition would not be unfair because the British and French have been on notice at least since 1962 that ICAO expected the SST to meet subsonic noise standards, citing ICAO Resolution A14-7. In response, it is noted that in 1962 it could not have predicted that subsonic noise technology would have advanced as rapidly as it has in the last several years, or that supersonic noise technology would have encountered so many obstacles. In recognition of the technological infeasibility of applying subsonic noise standards to Concordes at this time, Resolution A14-7 was superseded by Resolution A22-14, which provides that subsonic noise standards will be used as "guiding principles" for SST noise standards until ICAO adopts SST standards.

Some commenters cited the fact that the British and French have an SST but the U.S. does not to support the argument that there would be no unfairness in banning the Concorde from the U.S. For example, the commenters stated that the U.S. should not exempt the first 16 Concordes because the British and French have never exempted any U.S. airplanes from their noise rules; or that to the extent international fairness is a consideration, the result might even be to prohibit a U.S. SST while allowing the Concorde; or that it is not consistent to require foreign subsonic transports to satisfy Part 36 Stage 2 noise limits in order to operate in the U.S. after 1985 without also requiring the same of foreign SSTs. The FAA has considered these arguments but rejects them because they do not take cognizance of the fact that the Concorde is the first of a kind, and is sufficiently different from subsonics in some respects, and new enough in comparison with most of the subsonics, that it cannot presently be thrown into the pool with the subsonics and treated identically. This point is developed more fully in this preamble in this discussion which compares the noise rules applicable to SSTs and subsonic transports.

IV. RELATION TO "LOCAL OPTION"

Many comments concerned the authority of airport proprietors to exercise their "local option" to control SST operations at their airports.

At one extreme, the commenters requested the Federal Government to preempt airport proprietors totally with respect to noise related airport use restrictions. At the other extreme, the comments stated that all local governments, not only airport proprietors, should be permitted to take any action locally desired to exclude aircraft. It was argued that introduction of the Concorde would disrupt land use plans established in order to accommodate aircraft complying with Part 36 noise limits, and that the Concorde should be limited only to runways where the takeoff is over water. Several comments suggested that the FAA use its airport certification authority to deny certificates for airports that have inadequate land use plans. This suggestion is currently being reviewed as part of FAA's consideration of a proposal by EPA concerning a possible airport noise regulation (see Notice 76-24, published at 41 FR 51522 on November 22, 1976). A similar comment suggested that the FAA prohibit the introduction of Concorde service into a particular airport until that airport has established an adequate land use plan.

Several comments requested that these rules define clearly the role of the airport proprietor. The FAA agrees that a restatement of Federal policy concerning the "local option" authority might be helpful. Notice 77-23 contained a concise description of this authority. As stated there, those rules do not affect the existing legal authority of local airport proprietors to issue noise related airport use restrictions that are not unjustly discriminatory or inconsistent with international obligations, and that do not impose an undue burden on air commerce.

Congress has the power under the Constitution to regulate the operations of airports for noise abatement purposes, but it has chosen not to do so. This Congressional policy leaves airport proprietors responsible for the regulation of their airports for noise abatement purposes. The proprietors may issue noise-related airport use restrictions that are not unjustly discriminatory and do not impose an undue burden on interstate or foreign commerce. The Chicago Convention and bilateral air services agreements do not alter this basic feature of American aviation law.

This legal principle has most recently been affirmed by the United States Court of Appeals for the Second Circuit in *British Airways Board vs. Port Authority*, 564 F.2d 1002 (2nd Cir. 1977). The court stated:

> Our initial opinion in this case delineated the extremely limited role Congress had reserved for airport proprietors in our system of aviation management. Common sense, of course, required that exclusive control of airspace allocation be concentrated at the national level, and communities were therefore preempted from attempting to regulate planes in flight. See *Allegheny Airlines vs. Village of Cedarhurst*, 238 F.2d 812 (2d Cir. 1958); *American Airlines vs. Town of Hempstead*, 398 F.2d. 369 (2d Cir.), cert. denied, 393 U.S. 1017 (1969). The task of protecting the local population from airport noise, however, has fallen to the agency, usually of local government, that owns and operates the airfield. *Air Transport Assn. vs. Crotti*, 389 F. Supp. 58 (N.D. Cal. 1975) (three-judge court); *National Aviation vs. City of Hayward*, 418 F. Supp. 417 (N.D. Cal. 1976). It seemed fair to assume that the proprietor's intimate knowledge of local conditions, as well as his ability to acquire property and air easements and assure compatible land use, cf. *Griggs vs. Allegheny County*, 369 U.S. 84 (1962), would result in a rational weighing of the costs and benefits of proposed service. Congress has consistently reaffirmed its commitment to this two-tiered scheme, and both the Supreme Court and executive branch have recognized the important role of the airport proprietor in developing noise abatement programs consonant with local conditions. 564 F.2d. at 1010,11.

This recognition of the unique capacity and responsibility of the airport proprietor to effect a "rational weighing of the costs and benefits of proposed service" is the foundation of the "local option" policy underlying FAA noise abatement rule making since Part 36 was originally issued in 1969. With respect to further refinement of this policy, as requested in public comments, the FAA is continuing to work closely with individual airport proprietors to assist them in the development of airport use restrictions in accordance with the extensive and detailed guidelines concerning "local option" in the November 18, 1976, Aviation Noise Abatement Policy of the DOT/FAA.

These rules, accordingly, do not determine or affect the right of the operator of any Concorde or other SST to fly to a particular airport. American civil airports other than Dulles International and Washington National are operated by authorities other than the Federal Government. FAA consideration of authorization of Concorde flights to particular airports will include environmental assessments for each airport. However, for the Concorde operations covered in the EIS for these rules, further environmental assessment under NEPA should not be necessary.

Finally, the curfew provisions of these rules, while extending the scope of federal action under § 611 of the Act, for SSTs, does not preempt in any way the authority of airport proprietors to take legitimate additional action to protect airport neighbors.

V. TYPE CERTIFICATION PROCEDURES

These rules, as proposed in Notice 77-23, contain several provisions of a highly technical nature that were designed to fit the Concorde, a high speed delta-wing aircraft, into the flight test and related noise measurement procedures used for the evaluation of subsonic aircraft in Part 36. Comments from the Concorde manufacturers addressed these proposals.

A. FLIGHT PROCEDURES

One commenter recommended that the noise type certification procedures for SSTs should measure the total noise contours of those aircraft and that this be done by adding a new set of measurement points outside the points currently prescribed. The FAA believes that this concept may have merit and is evaluating it for possible future application. However, such a revision would be beyond the scope of the proposals issued to date.

B. TAKEOFF TEST SPEED

One comment indicated that it is too early in the development of the SSTs to define a specific takeoff noise demonstration speed for those airplanes. The FAA does not concur with this comment as applied to the Concorde (which is the only airplane covered by the takeoff test speed proposal). The "minimum approved value of V_2+35 knots" and the "all-engines-operating speed at 35 feet" are readily ascertainable under the type certification regulations that define the airworthiness requirements for the Concorde. The use of these terms in § C36.7(f)(2) assures consistency with those airworthiness requirements.

C. ACOUSTICAL CHANGE

One comment objected to the application of the subsonic "acoustical change" rule to SSTs without change. The "acoustical change" rule is intended to ensure that airplanes are not modified in a way that makes them louder. The primary objection was that, unlike subsonic airplanes, SSTs should be permitted to use reduced thrust in the takeoff noise compliance testing. The FAA believes that the use of power cutbacks permits real noise increases caused by design changes (such as larger engines) to be "masked" by the use of different thrust schedules before and after the type design change. For this reason, this provision (see § C36.7) is adopted as proposed.

D. OTHER NOISE TEST COMMENTS

Several comments were received concerning the method of testing SSTs for noise. The FAA has reviewed these comments but has decided that their adoption would not materially improve, and could degrade, the current Part 36 procedures as valid indicators of SST noise levels related to the levels of subsonic airplanes. These comments included a request that an entirely separate regulation, outside of Part 36, be issued for SSTs; the use of dBA rather than EPNdB as the unit of measure; additional noise measurement points to accommodate the noise characteristics of SSTs; and the use of revised takeoff and approach test procedures to account for the different operating procedures that could be used in actual operation. One comment requested revisions of the tradeoff provisions of § C36.5(b), which allow, for example, the approach noise to exceed the prescribed limits by a limited amount if the noise levels at the other measuring points are below the limits for those points. The FAA believes that the current tradeoff provisions are necessary in order to account for minor variations in the noise signature of airplanes that are essentially identical in their overall noise impact.

VI. SECTION-BY-SECTION ANALYSIS

These rules amend provisions in three parts of the Federal Aviation Regulations—Part 21 (14 CFR Part 21), which contains the procedural requirements for the certification of aeronautical products; Part 36 (14 CFR Part 36), which contains the substantive noise limits and related noise measurement and test procedures that must be complied with for the issuance of type certificates and airworthiness certificates; and Part 91 (14 CFR Part 91), which sets forth the flight and other requirements that apply to the operation of aircraft.

A. CHANGES TO PART 21 (14 CFR PART 21)

1. *Acoustical Change: Certification.*

Section 21.93(b)(1) and (2) are amended by deleting the word "subsonic." The effect of this amendment is to make the definition of the term "acoustical change" equally applicable to supersonic and subsonic airplanes. Under these procedures, for both supersonic and subsonic airplanes, an "acoustical change" exists whenever a voluntary change in the type design of airplane is applied for that might increase the noise levels of the airplane. Therefore, for both supersonic and subsonic airplanes, the acoustical change provisions of Part 36 (§ 36.7) must be complied with prior to approval of that type design change (see also the discussion of the proposed change to § 36.7 and § 91.309(b)(1), below).

2. *SST "New Production" Rule.*

Section 21.183(e)(1) is amended by deleting the word "subsonic." The effect, for supersonic as well as subsonic airplanes, is that a standard airworthiness certificate (which is the class of airworthiness certificate required for U.S. air carrier operation and similar operations) is not issued for airplanes that have not had flight time before the dates specified in Part 36 (§ 36.1(d)), unless compliance with the applicable noise standards in Part 36 is shown. (See also the discussion of the proposed revision of § 36.1(d).) This would extend, to SSTs, the rules applied to subsonic airplanes in Amendment 36-2—popularly called the "new production" rule published in the FEDERAL REGISTER (38 FR 29569) on October 26, 1973.

B. CHANGES TO PART 36 (14 CFR PART 36)

1. *Part 36 Scope.*

Section 36.1 is amended by adding a new subparagraph (a)(3) extending the applicability of Part 36 to cover the issuance of a type certificate, and changes to that type certificate, and the issuance of standard airworthiness certificates, for the Concorde airplane. This brings Concordes within the overall scope of Part 36.

2. *Airworthiness Certificate.*

Section 36.1(d) is amended by deleting the word "subsonic", in the lead-in, by adding the word "subsonic" to the current subparagraphs containing compliance dates, and by adding a new compliance date for Concorde airplanes. This requires Concorde without flight time before January 1, 1980, to comply with the Stage 2 noise limits of Part 36 in effect on the date of publication of Notice 77-23 (October [illegible]3, 1977), in order to obtain an original standard airworthiness certificate. It is noted that the compliance date in § 36.1(d) are related to "flight time." Part 1 of the Federal Aviation Regulations (14 CFR Part 1) defines "flight time" as the time from the moment an airplane first moves under its own power for the purpose of flight until the moment it comes to rest at the next point of landing.

3. *Definitions: "Subsonic" and "Supersonic"*

Section 36.1(f) is amended by adding new definitions of "subsonic airplane" and "supersonic airplane." The dividing line between these classes is Mach 1 in terms of the maximum operating limit speed, M_{mo}, as defined in FAR Part 1. Note that these definitions apply wherever the terms "subsonic airplane" and supersonic airplane" are used in Part 36, and also where they are used in Part 91 because of the change to § 91.301(d), discussed below.

4. *Retroactivity.*

The amendment to paragraph (a) of § 36.2 is editorial in nature. It consolidates language. The purpose of that paragraph is to supersede § 21.17 of Part 21, with respect to the designation of applicable type certification regulations, wherever Part 36 imposes type certification requirements that apply to airplanes for which an application for a type certificate has already been submitted.

5. *Acoustical Change.*

Section 36.7 is amended by deleting the term "subsonic." The effect of this change (and of the deletion of the term "subsonic" from § 21.93, discussed above) is to apply to SSTs the same acoustical change rules that currently apply to subsonic airplanes. Currently operating Concordes are "Stage 1 airplanes" under § 36.7 since they have not been shown to comply with the noise limits for "Stage 2 airplanes" or "Stage 3 airplanes." The Stage 1 acoustical change provisions of § 36.7(c) provide that an airplane, after a type design change, may not exceed the noise levels created prior to that change. These rules amend § 36.7 to include Concordes.

6. *SST Noise Measurement.*

The changes to Subpart B of Part 36 make it clear that Subpart B (which, beginning with § 36.101, requires transport category large airplanes and turbojet powered airplanes to comply with Appendices A and B of Part 36) covers supersonic as well as subsonic airplanes.

7. *Subpart C Limited To Subsonics.*

The changes to Subpart C, of Part 36 make it clear that Subpart C, as amended, applies only to subsonic airplanes.

8. *New Subpart D: Supersonic airplanes.*

A new Subpart D, applying to SSTs is added to Part 36. In this new subpart, new § 36.301, "Noise limits: Concorde airplanes," is also added, containing requirements for Concorde corresponding to those for the first subsonic airplanes covered by current § 36.201 (the first Boeing 747, which was originally unable to comply with the noise limits in Part 36). Like § 36.201, new § 36.301(a) provides that compliance with the applicable noise limits must be shown, for Concorde airplanes, with noise levels measured and evaluated as prescribed in Subpart B of Part 36. This requires compliance with the detailed noise measurement requirements in Appendix A of Part 36 and the detailed requirements in Appendix B concerning the evaluation of noise data received in accordance with Appendix A. Compliance must be demonstrated at the same measuring points (i.e., takeoff, sideline, and approach) as are required under Appendix C for subsonic airplanes.

9. *Concorde Noise Levels.*

Paragraph (b) of new § 36.301 provides that, for the Concorde airplane, it must be shown in accordance with the provisions of Part 36 in effect on the publication date of Notice 77-23 (October 13, 1977), that the noise levels of that airplane are reduced to the lowest levels that are "economically reasonable, technologically practicable, and appropriate for the Concorde type design." This standard corresponds to considerations prescribed by the Congress in § 611(d)(4) of the Federal Aviation Act of 1958, as amended by the Noise Control Act of 1972.

10. *Operating Limitations.*

The term "subsonic" is deleted from § 36.1581(c). The effect of this change is that, for both supersonic and subsonic airplanes, weights used in complying with the takeoff or landing noise limits of Part 36, if less than the maximum weight or design landing weight, respectively, must be furnished as operating limitations.

11. *"Reference Speed".*

The changes to §§ C36.7 and C36.9 are intended to incorporate, for the Concorde noise test, the concept of "reference speed" which is the speed presently used, instead of stalling speed, in the takeoff and landing test requirements for that airplane. "Stalling speed" has relevance only for conventionally winged subsonic aircraft, not for delta winged supersonics like Concorde.

C. CHANGES TO PART 91 (14 CFR PART 91)

1. *Sonic Boom.*

The changes to §§ 91.1(b)(3) and 91.55 are intended to protect the coastal areas of the United States from sonic boom. The current rule prohibits the creation of sonic boom by civil airplanes that are in the United States by prohibiting flight in excess of Mach 1 while the airplane is within U.S. territorial limits. These rules extend the sonic boom protection to cover SSTs that, while physically outside the U.S., are going to or from airports in the United States.

This provision would require that information available to the flight crew include flight limitations that ensure that no sonic boom on the surface in U.S. territory will result from flights entering and leaving the United States. In order to operate to or from any U.S. airport, the SST operator is required to comply with these limitations with other limitations issued to the operator in an authorization to exceed Mach 1 under Appendix B of Part 91. Those authorizations are issued in the rare cases specified in that Appendix, for specific operations (such as flight testing of supersonic airplanes) in designated flight test areas.

2. *Scope of Subpart E.*

The amendment of § 91.301(a) reflects the expansion of Subpart E of Part 91 to include SSTs. Subpart E—Operating Noise Limits, contains phased noise limits for certain subsonic turbojet airplanes, leading to final compliance with Part 36 by January 1, 1985.

The revision of § 91.301(a) highlights the different scopes of each section in revised Subpart E. Section 91.301(a)(1) makes it clear that current §§ 91.303 through 91.307 are limited to subsonic airplanes an dto U.S. registered airplanes. For consistency with this scope, § 91.307 is amended to limit the foreign air commerce provision to subsonic airplanes. No substantive change to §§ 91.303 through 91.307 is made by these rules.

3. *Parts 91, 121, 123, 129, and 135 Covered.*

Section 91.301(a)(2) provides that the newly proposed operating restrictions in §§ 91.309 and 91.311 (for SSTs that do not comply with the Stage 2 noise limits of Part 36), apply to U.S. registered airplanes having standard airworthiness certificates, and foreign registered airplanes that would be required to have standard airworthiness certificates, for the intended operations if they were registered in the United States. That provision covers operations under Parts 91, 121, 123, 129, and 135.

4. *Definitions: "Subsonic" and "Supersonic".*

Section 91.301 is amended to incorporate the new Part 36 definitions of "subsonic airplane" and "supersonic airplane" in Subpart E of Part 91. See discussion, above, of new § 36.1(f)(7) and (8).

5. *Subsonic Dates Unchanged.*

The revisions of §§ 91.303 and 91.305 make it clear that the current dates for phased and final compliance with Part 36, ending on January 1, 1985, apply only to subsonic airplanes. See new § 91.311 for application of Part 36 to SSTs.

6. *SST Operating Noise Rules.*

Section 91.309 is added, containing operating rules that apply to SSTs that operate to or from a U.S. airport but have not been shown to comply with the Stage 2 noise limits of Part 36 in effect on the publication date of Notice 77-23 (October 13, 1977). Note that use of the tradeoff provisions of Part 36 is allowed. This section applies equally to U.S. registered and foreign registered supersonic airplanes.

New § 91.309(b) prescribes the operational restrictions intended to protect airport environments from the excessive noise of SSTs that do not comply with the "Stage 2" noise limits of Part 36. Section 91.309(b)(1) requires that no person in the United States may land or takeoff an airplane covered by the section if its noise has been increased (as measured under Part 36) through modification of the type design of the airplane. This is the operational counterpart of the acoustical change provisions of § 36.7 of Part 36 (see above discussion). The words "regardless of whether a type design change approval is applied for under Part 21 of this chapter" extend the acoustical change type certification concept to the operation of airplanes not covered by U.S. type certification rules.

Section 91.309(b)(2) provides that no flight may be scheduled, or otherwise planned, for takeoff or landing at any U.S. airport after 10 p.m. and before 7 a.m., local time.

Section 91.311 provides that, except for Concorde airplanes having flight time before January 1, 1980, no SST may be operated in the U.S. that does not comply with the Stage 2 noise limits of Part 36 in effect on the publication date of Notice No. 77-23 (October 13, 1977).

ADOPTION OF AMENDMENTS

Accordingly, Chapter I of Title 14 of the Code of Federal Regulations is amended, effective July 31, 1978.

(Secs. 307, 313(a), 601(a), 603, 611, Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a), 1421(a), 1423, and 1431); sec. 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)); Title I, National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321 et seq.); Executive Order 11514, March 5, 1970).

Amendment 91-154

Operations Review Program; Amendment No. 6: General Operating and Flight Rules and Related Airworthiness Standards and Crewmember Training

Adopted: September 28, 1978 **Effective: December 5, 1978**

(Published in 43 FR 46230, October 5, 1978)

SUMMARY: The purpose of these amendments is to update and improve certain requirements applicable to aircraft, training programs, and airmen. These amendments are part of the Operations Review Program.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

HISTORY

These amendments are the sixth in a series of amendments to be issued as part of the Operations Review Program. The following amendments of the series have previously been issued as part of the Operations Review Program:

Title	*FR Citation*
Clarifying and Editorial Changes	(41 FR 47227; October 28, 1976)
Rotorcraft External-Load Operations	(42 FR 24196; May 12, 1977 amended by 42 FR 32531; June 27, 1977)
Airspace, Air Traffic and General Operating Rules	To be issued at a later date)
Development of Major Repair Data	(43 FR 3084; January 23, 1978)
Miscellaneous Amendments	(43 FR 22636; May 25, 1978)
Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft	(43 FR 22643; May 25, 1978 amended) by 43 FR 28403; June 29, 1978)

These amendments are based on a Notice of Proposed Rule Making (Notice 77-20) published in the Federal Register on September 1, 1977 (42 FR 44204). All interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review by the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below these amendments and reasons for their adoption are the same as those contained in Notice 77-20.

DISCUSSION OF COMMENTS

The following discussions are keyed to like-numbered proposals in Notice 77-20 and amendments to §§ 121.417, 121.437 and 121.439. Since these amendments to §§ 121.417, 121.437 and 121.439 are clarifying and relaxatory in nature and do not impose a burden on the public, I find that notice and public procedure are unnecessary and that the amendments may be effective without notice.

Proposal 6-1. Proposed § 91.33(b)(12) would require that safety belts have metal to metal buckles or latching devices. Implementation of this amendment necessitates corollary amendments to the airworthiness provisions of §§ 23.1413, 25.1413, 27.1413 and 29.1413.

Most commenters favored the proposal with some of the commenters suggesting various effective dates for compliance, ranging from one to five years instead of the two-year period proposed. These suggestions were based on consideration of equipment availability and the economic burden of purchasing the new type safety belts. Considering these comments, the FAA concluded that a three-year period for compliance will suffice and the final rule is amended accordingly. One commenter asked whether the "metal to metal" requirement applied to both buckles and latching devices. After further review, the FAA believes that the requirement could be misinterpreted. Since a "buckle" is a "latching device", the word "buckle" is deleted in the rule.

One commenter noted that current § 91.33(b)(12) uses the plural form when referring to "occupants" and "belts". Since it was not FAA's intention to change the current rule in this regard, the plural form is retained.

Proposal 6-2. The proposed revision of § 25.1413 would reflect, in the airworthiness standards, amendments made to § 91.33. See the discussion for Proposal 6-1.

Proposal 6-3. The proposed revision of § 27.1413 would reflect, in the airworthiness standards, amendments made to § 91.33. See the discussion for Proposal 6-1.

Proposal 6-4. The proposed revision of § 29.1413 would reflect, in the airworthiness standards, amendments made to § 91.33. See the discussion for Proposal 6-1.

Proposal 6-5. The proposed revision to § 91.4 would have required a person who releases an aircraft for flight to another person to first determine who intends to serve as pilot in command and to then determine that the pilot in command has current certificates and ratings as required in the regulations.

A large majority of the comments received were unfavorable. Many commenters objected to the proposal on the basis that current rules make the pilot responsible for being properly certificated and rated for the operation intended and the implementation of one regulation to assist in the enforcement of another is not only unnecessary but would impose an economic burden on the industry.

One commenter said the added responsibility imposed upon the "releasor" would involve third parties in possible litigation and the additional inspections would not bring about an increase in safety commensurate with the effort required. Another commenter questioned whether, in light of the wording of § 61.3(h) which limits who can request a person to present his certificate for inspection, the Administrator can, in another rule, designate inspection responsibility to everyone who uses, causes to use, or authorizes the use of aircraft.

A few commenters called attention to the fact that it is just good business to assure that the person to whom they lease aircraft is properly certificated, but there is not sufficient justification to make the lessor responsible for determining all aspects of a pilot's currency.

After consideration of all the comments received and after further review, the FAA believes that there exists insufficient justification to amend the regulations as proposed. Accordingly, the proposal to amend § 91.4 is withdrawn.

Proposal 6-6. Current § 91.14 requires the pilot in command to ensure that each person on board has been notified, before each takeoff and landing, to fasten that person's safety belt. The proposal would require the pilot in command of the aircraft to ensure that each person on board is briefed on how to fasten and unfasten that person's safety belt.

A number of commenters incorrectly concluded that the proposed rule would require the pilot in command to personnally conduct the briefing. The proposed rule would only require the pilot in command to ensure that the passengers are briefed.

One commenter stated that the pilot in command could brief the passengers in the event of an emergency. The FAA believes that, when an emergency develops, the pilot in command would not have the time to brief passengers on how to buckle and unbuckle their safety belts.

A few commenters stated that anybody familiar with automobile seat belts should know how to fasten and unfasten airplane safety belts and, therefore, the briefing is unnecessary. The FAA does not agree. Certain aircraft safety belts are different from those used in automobiles and it cannot be assumed that all passengers are familiar with automobile safety belts.

Since the pilot in command is currently responsible to ensure that persons are notified to fasten their safety belts, the FAA believes that little additional effort will be involved for the pilot in command to also ensure that persons on board are briefed on how to fasten and unfasten their safety belts. Accordingly, § 91.14 is amended as proposed.

Proposal 6-7. Current § 91.21 prohibits a person from operating a civil aircraft for flight instruction unless that aircraft has fully functioning dual controls. The proposed rule would allow the use of a single, functioning, throwover control wheel for instrument flight, instrument flight instruction and simulated instrument flight. The FAA received a large number of favorable responses to this proposal and it is adopted without change.

Proposal 6-8. This proposal would move the 30 minute VFR day fuel reserve requirement, now prescribed in § 91.207 (which applies to large and turbojet-powered multiengine airplanes), to a new § 91.22 so that this requirement would apply to all airplanes. Additionally, fuel requirements would be added for night VFR flight and rotorcraft operations.

Although a number of commenters supported the proposed amendment, a larger number disagreed. Some of those who disagreed stated that the proposed amendment was an attempt to legislate safety in an area which has been governed by common sense. Judging from the increasing number of fuel exhaustion accidents which occur each year, the FAA believes there must be a more precise means to determine an adequate fuel reserve for VFR flight.

A few commenters stated that the fuel requirements are already contained in § 91.5 and that proposed § 91.22 was, therefore, redundant. Section 91.5 requires the pilot to be informed regarding "fuel requirements". It does not, however, contain a requirement for fuel reserves beyond the first point of intended landing.

Three commenters favored simplification of the regulation by making the fuel reserves the same for both day and night. One of the commenters favored one hour and two favored 30 minutes for both. The FAA believes that the distance between adequately lighted airports warrants the additional fuel reserves for night VFR operation.

One commenter recommended that § 91.22 be made consistent with § 91.23 by using the term "civil aircraft" instead of "airplane" in § 91.22. The FAA agrees and the term "civil aircraft" is used in the title to § 91.22.

One commenter suggested that the phrase "normal cruising speed" be used rather than "normal cruising fuel consumption" to make the nomenclature the same as in § 91.23(c). The FAA agrees, and § 91.22, as adopted, is revised accordingly.

Proposal 6-9. The purpose of proposed § 91.23 was to simplify flight planning by eliminating the reference to minimum obstruction clearance altitude (MOCA) and minimum en route IFR altitude (MEA). A number of commenters said that the proposed revision was somewhat simpler than the current rule but that it was still cumbersome. They suggested that it would be much simpler if criteria were established which would require the pilot to determine only that a certain ceiling and visibility would exist one hour before and one hour after the estimated time of arrival at the airport of first intended landing. Most commenters supported a ceiling of 2,000 feet above the airport elevation and three miles visibility. However, a number of commenters recommended ceilings of 2,500 and 3,000 feet and one commenter suggested a visibility of four miles. After further review, the FAA believes that, in the interest of simplicity, this proposal should be modified to require only a ceiling of 2,000 feet above the airport elevation and three miles visibility for the period one hour before and one hour after the estimated time of arrival at the first airport of intended landing.

Another commenter stated that the proposed rule would do little or nothing for safety and would be almost immpossible to enforce. The FAA does not agree. The FAA believes that the amendment was designed to provide a simpler and less restrictive means for determining fuel requirements and that the amendment is enforceable.

Additionally, § 91.83(b) is amended to make the information required for a flight plan consistent with the ceiling and visibility requirements of § 91.23 as adopted. See Proposal 6-16.

One commenter suggested that the word "applicable", as used in § 91.23(b)(2)(ii), should be explained. Since § 91.23, as adopted, deletes the reference "applicable visibility minimums", this no longer presents a problem. Section 91.23, as adopted, is revised accordingly.

Proposal 6-10. Current § 91.25(a)(2) requires an operational check of the VOR within the preceding ten hours of flight time and within ten days before flight. Proposed § 91.25(a)(2) and (d) would delete the ten day requirement and predicate the VOR equipment check requirement on ten hours of flight time. Numerous commenters pointed out that it would be inconsistent to refer to flight time in § 91.25(a)(2) and to refer, in § 91.25(d), to "tachometer time" and "aircraft time". A number of commenters suggested that only days be used as the guide and a period of 30 days to 90 days would be feasible considering the improved reliability of VOR equipment and the need to reduce the aircraft operator's recordkeeping burden. The FAA agrees. Accordingly, proposed § 91.25(a)(2) is revised to require that the VOR equipment be checked at least every 30 days rather than after ten hours of flight time. Since § 91.25(a)(2), as adopted, no longer contains a reference to flight time, there is no longer a need to amend § 91.25(d) to require tachometer time, or, in its absence, aircraft time to date. Accordingly, these references are deleted. The FAA believes, after further consideration, that there would be no useful purpose in retaining a permanent record of the VOR equipment check. Therefore, the word "permanent" is deleted in both places where it appears in § 91.25(d), as adopted.

Proposal 6-11. Proposed § 91.29 would require the pilot in command of a civil aircraft to enter in the aircraft log and maintenance record of the aircraft any mechanical discrepancy noted during flight. The majority of commenters opposed the proposed amendment. They stated that the log and maintenance records are permanent records which should not be cluttered with discrepancies noted by the pilot, the term discrepancy is not defined and, as worded, the proposed amendment stipulates that the discrepancy must be entered in both the aircraft log and maintenance record. They also stated that the proposed rule is unenforceable, the proposed amendment would require the pilot/owners to write a note to themselves and persons operating under Part 121, 123, 127 and 135 have established procedures for reporting mechanical irregulatities.

After further review and careful consideration of all the comments, the FAA believes that the current regulations are adequate and proposed § 91.29 is withdrawn.

Proposal 6-12. This proposal would amend § 91.33(b)(12 to require safety belts to have metal latching devices. See the discussion for Proposal 6-1. One commenter called our attention to the fact that current § 91.33(b)(12) states ". . . approved seat belts for all occupants . . ." whereas the proposed amendment states ". . . for each occupant . . .". Since it was not our intention to make this change the proposal has been amended to use the wording of the current rule.

Proposal 6-13. This proposal would mean § 91.36(b) to require that the equipment be tested to the maximum operating altitude of the aircraft. Almost all of the comments received were favorable. ne commenter asked what is meant by maximum operating altitude and stated that a definition is needed somewhere. The definition is contained in §§ 23.1527, 25.1527, 27.1527 and 29.1527 which describe maximum operating altitude limitations. These limitations are also contained in the aircraft flight manual. The proposed amendment is adopted without change.

Proposal 6-14. Proposed § 91.45(a)(3)(ii) would allow a takeoff on a wet runway with one engine inoperative based solely on engineering findings. Several commenters objected to this proposal, contending that the initial approval must be based upon demonstration under actual conditions. Other commenters stated that one engine inoperative takeoffs from a wet runway should not be allowed on the basis of analytical data alone. In view of these comments and after further review, this proposal is withdrawn.

Proposal 6-15. Proposed § 91.54(a)(2) would require a typed or printed name and address and the signature of the person responsible for operational control of large aircraft. Two comments concurred with the proposal as written.

One commenter stated it was not necessary for the government to regulate the manner in which a form is completed. The commenter further stated that if the form is not completed in a manner acceptable to the FAA, it should be refused. The FAA believes that it should regulate the manner in which the form is completed and that the person making out the form should know in advance what is acceptable to the FAA. Accordingly proposed § 91.5(a)(2) is adopted without substantive change.

Proposal 6-16. Proposed § 91.83(b) as adopted, makes the information required for a flight plan consistent with the ceiling and visibility requirements of amended § 91.23. See the discussion for Proposal 6-9.

Proposal 6-17. The proposed change to § 91.193 would require a hand fire extinguisher in the passenger compartment of each airplane accommodating less than 31 passengers.

The commenters who opposed the rule change stated that the fire extinguisher would add unnecessary weight to the aircraft, would discharge all over the cabin when used, and would create a hazard if it became loose during turbulence. One commenter said that small airplanes which carry up to six passengers usually operate at lower altitudes and can, therefore, be landed readily if an in-flight fire starts.

Another commenter had never heard of an in-flight fire except an engine fire, and that a fire extinguisher in the cabin would be of no help in such a situation. In view of the comments and after review, this proposal is withdrawn.

Proposal 6-18. Proposed § 91.201(b) would require a sideward restraint for under seat baggage. Commenters who opposed the proposed amendment cited the installation costs, extra weight, and out-of-service time for installation of such restraining devices. The FAA believes the costs and added weight would be minimal and justified considering the improved safety provided. After further review, the FAA believes that the operator should be given additional time to install these restraint devices. Accordingly, this amendment provides a compliance date of one year from the effective date of this amendment. Since the operator has been given one year to make these installations, there should be little or no disruption of flight operations. Commenters also contended that since, in an emergency, most of the forces are forward, there is little tendency for the baggage to move sideward, and, in emergency evacuation demonstrations conducted by the airlines, items of mass placed in the aisle were found to create no delay. The FAA believes that these commenters limited their observations to crash landings where the motion would be forward. Severe turbulence may also create a potential hazard to passengers when large articles become dislodged. The FAA cannot agree that, in emergency evacuation demonstrations, items of mass cause no delay. They cause delay when placed in the aisles during evacuation tests to simulate actual conditions caused by unrestrained under seat items moving into the aisles during a crash landing. Several commenters in favor of the proposal stated that they had observed under seat baggage that moved sideward blocking the aisles during heavy turbulence or emergencies.

Accordingly, § 91.201(b) is adopted as proposed with the delayed compliance date as noted.

Proposal 6-19. The proposed deletion of § 91.207 is related to the proposal for a new § 91.22 (See the discussion for Proposal 6-8) which would make the requirement for fuel reserves of 30 minutes for day VFR and 45 minutes for night VFR applicable to all airplanes operated under Part 91. No commenters objected to the deletion of current § 91.207 if new § 91.22 is adopted. Since § 91.22 is adopted, § 91.207 is deleted.

Proposal 6-20. No opposing comments were received concerning proposed § 91.213(c). Accordingly, § 91.213(c) is adopted as proposed.

AMENDMENT TO § 121.417

Amendment No. 121-144 (43 FR 22643; May 25, 1978) amended the crewmember emergency training provisions of § 121.417 by requiring each crewmember to actually operate each item of equipment required for the deployment and use of emergency evacuation slides. However, as stated in Notice No. 77-12 (42 FR 37417), while flight attendants would be required to operate the associated escape devices during initial and recurrent training, automatic and manual escape chutes need not be deployed each time that the associated exit is cycled.

However, since publication of Amendment No. 121-144, it has come to the attention of the FAA that this amendment could be given an overly restrictive interpretation and that further clarification is necessary. Accordingly, this amendment revises § 121.417(c) to make it clear that the emergency drill requirements prescribed for crewmembers apply to both initial and recurrent training. Also, it more clearly specifies that each crewmember is not required to actually operate (removal, transfer or inflation of the life raft, or slide/raft pack) the equipment specified in paragraphs (c)(6)(v), (c)(6)(vi), and (c)(6)(vii) during emergency drills. Additionally, this amendment clarifies the fact that the evacuation slide need be used only once during each training phase.

Finally, the phrase "or training device" has been inserted in §§ 121.417(c)(6)(v) and (vii) respectively to clarify the fact that the training specified may be conducted in a training device.

Since this amendment is relaxatory and clarifying in nature and does not impose a burden on the public, I find that notice and public procedure are unnecessary and this amendment may be made effective without notice.

AMENDMENT TO § 121.437

Amendment No. 121-144 (43 FR 22643; May 25, 1978) amended § 121.437(b) to require pilots to hold a category and class ratings appropriate for the type of aircraft being used. After the amendment to § 121.437(b) became effective, the FAA was informed by the Air Transportation Association (ATA) that the amendment would be extremely costly and very difficult for the airlines to comply within the specified time, as it would require the airlines to provide aircraft flight checks for more than 5,000 pilots to obtain the required category and class ratings. Consequently, the effective date of § 121.437(b) was extended to July 1, 1980, by Amendment No. 121-146 (43 FR 28403; June 29, 1978).

In addition, ATA stated the training provided to pilots, other than pilots in command, under the provisions of Part 121 and the proficiency checks requirements of § 121.441 are equivalent to the standards required for a commercial pilot to obtain an airplane category and class rating.

Accordingly, § 121.437(b) is amended to allow pilots who are currently employed by a certificate holder and have satisfactorily completed the approved training program under Subpart O, including the proficiency flight check required by § 121.441, of this Part, to be issued the appropriate category and class rating by presenting proof of compliance with those requirements to an Air Carrier or Flight Standards District Office. The FAA believes that this amendment would provide an equivalent level of safety.

To delay this amendment would pose an undue burden to the certificate holders and pilots affected by the amendment. For this reason, the FAA has determined notice and public procedure hereon are impractical and contrary to the public interest.

AMENDMENT TO § 121.439

Amendment No. 121-144 (43 FR 22638; May 25, 1978) amended § 121.439(c)(2) to require pilots to be currently qualified in another airplane of the same group prior to that pilot receiving recency of experience training in a visual simulator.

After further review, the FAA believes that this requirement is too restrictive in that it would not allow certificate holders that operate only one type of airplane in the same group to allow their pilots to use a visual simulator to reestablish recency of experience requirements, as it would be impossible for their pilots to be dual qualified, or currently qualified in another airplane of the same group. This amendment deletes § 121.439(c)(2) and allows use of the visual simulator to reestablish recency of experience requirements. As these changes are relaxatory and clarifying in nature and do not impose a burden on the public, notice and public procedure are unnecessary and these changes are adopted as noted.

ADOPTION OF THE AMENDMENTS

Accordingly, Parts 23, 25, 27, 29, 91, and 121 of the Federal Aviation Regulations (14 CFR Parts 23, 25, 27, 29, 91, and 121 are amended effective December 4, 1978, except for Section 121.417 which is effective September 29, 1978.

Sections 313, 314, and 601 through 610 of the Federal Aviation Act of 1958 (49 U.S.C. 1354, 1355, and 1421 through 1430) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

Amendment 91-155

Amendment No. 3: Airspace, Air Traffic and General Operating Rule Amendments

Adopted: March 6, 1979 **Effective: April 16, 1979**

(Published in 44 FR 15654, March 15, 1979)

SUMMARY: This amendment updates regulations concerning terminal control areas (TCAs), use of noise abatement preferential runways, and flight plan information regarding the number of persons aboard aircraft. It is part of the Operations Review Program and affects regulations involving airspace, air traffic, and related general operating rules considered under that Program.

FOR FURTHER INFORMATION CONTACT:

William E. Broadwater, Airspace and Air Traffic Rules Division, Air Traffic Service, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone (202) 426-3128.

SUPPLEMENTARY INFORMATION:

BACKGROUND OF OPERATIONS REVIEW PROGRAM

These amendments are a part of the 1975-1976 Operations Review Program. The FAA initiated an Operations Review Program because of technological advances in aviation, growth in aeronautical activity, and the favorable reception of an analogous Airworthiness Review Program. The Operations Review Program is part of FAA's efforts to respond to the safety needs of the general public and the aviation community.

Although the changes in this amendment pertain only to airpace, air traffic, and related general operating rules, the 1975-1976 Operations Review Program included other rules, which are the subject on other amendments involving maintenance, airmen certification, air carrier certification, air travel clubs and operators for compensation or hire, and schools and other certificated agencies.

On February 28, 1975, the FAA published Notice No. 75-9 in the FEDERAL REGISTER (40 FR 8685) announcing the 1975–1976 Operations Review Program and requested all interested persons to submit proposals for amending Parts 43, 63, 65, 91, 101, 105, 121, 123, 127 and 129 of the FARs. In response, the FAA received more than 900 proposals from the public and various FAA components. On June 4, 1975, the FAA published Notice No. 75-9A, in the FEDERAL REGISTER (40 FR 24041), stating that each proposal received in response to Notice No. 75-9 had been evaluated and compiled into a document entitled "Compilation of Proposals." That notice also stated that the proposals contained in the document would be considered as possible agenda items for the 1975–1976 Operations Review Conference, scheduled to be held on December 1–5, 1975. Copies of the "Compilation of Proposals" were sent to each person and organization submitting a proposal. Copies were also made available to any person requesting a copy. As scheduled, the Operations Review Conference was held in Arlington, Virginia, on December 1–5, 1975.

After evaluating the comments submitted in response to Notice No. 75-9A and those made by the participants at the 1975–1976 Operations Review Conference, the FAA determined that a number of the proposals were adequately justified to serve as the basis for a notice of proposed rule making.

BACKGROUND OF THIS AMENDMENT

On October 26, 1976, the FAA published Notice No. 76-20 (41 FR 46875), proposing to amend Parts 71 and 91 of the FARs to revoke all provisions for Group III terminal control areas (TCAs) and the 200-knot (230 m.p.h.) indicated airspeed restriction for all TCAs, and to make certain editorial and clarifying changes to requirements regarding flight plan information and a pilot's request of a runway other than the one assigned by ATC for noise abatement purposes. Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all matters presented.

Twenty-seven commenters responded to Notice No. 76-20. Of those, five concurred with all of the proposed changes, without offering any accompanying comments. The following discussion of the comments from the remaining twenty-two commenters is arranged according to the particular proposal to which they relate.

§ 91.24—ATC TRANSPONDER AND AUTOMATIC PRESSURE ALTITUDE REPORTING EQUIPMENT

COMMENTS: Five commenters addressed the proposed changes to § 91.24 to delete the obsolete dates for complying with the required use of ATC transponder and automatic pressure altitude reporting equipment, and to revoke the provisions involving Group III TCAs. Of those five, one opposed deleting the obsolete compliance dates on the ground that the FAA would be "mandating that all aircraft be equipped with automatic pressure altitude reporting equipment." A second opposed the proposal, believing it would establish a requirement that the equipment be used for entry into any TCA. A third expressed concern that the proposal would require use of the equipment in all controlled airspace.

RESPONSE: Final action on the proposal to revoke the provisions involving Group III TCAs is being withheld to ensure consistency with additional proposals concerning "controlled visual flight" that are being separately developed by the FAA. See Notice 78-19 "Proposed Controlled Visual Flight Rules," published in the FEDERAL REGISTER (44 FR 1322) on January 4, 1979.

In response to the comments concerning compliance dates, it should be noted that the proposed change to §91.24 did not include any of the requirements as understood and expressed by the commenters. The proposal concerned amending § 91.24 only to delete the obsolete compliance dates.

The current specifications, performance standards, and requirements for the use of transponder equipment for U.S. Registered Civil Aircraft in all airspace and for all aircraft in controlled airspace were promulgated through a series of amendments to the FARs [Amdt. 91-116, (38 FR 14672, June 4, 1973); as amended by Amdt. 91-123 (39 FR 23523, June 27, 1974); Amdt. 91-127 (40 FR 16652, April 14, 1975); and Amdt. 91-128 (40 FR 27015, June 26, 1975)]. This amendment does not alter any requirements concerning transponders or affect their use in any airspace; it merely deletes references to compliance dates that have already passed, and is thus an editorial change. The section heading is also changed, from "ATC transponder equipment" to "ATC transponder and altitude reporting equipment and use." This editorial change reflects the fact that § 91.24 is not limited to transponder equipment standards, but includes requirements for the use of that equipment and the use of automatic pressure altitude reporting equipment. No substantive change results.

§ 91.70(c)—ELIMINATION OF THE 200-KNOT SPEED RESTRICTION

COMMENTS: Six comments were received on the proposal to revoke § 91.70(c) and to make a related change to § 91.1(b)(1). Section 91.70(c) imposes a 200-knot (230 m.p.h.) indicated airspeed restriction on operations in airspace underlying a TCA or in a VFR corridor designated through a TCA. As a result of revoking § 91.70(c), the 250-knot (288 m.p.h.) speed restriction of § 91.70(a) would have applied to these areas. Three commenters agreed with the proposed change on the basis of reduction of cockpit workload and increased ability of pilots to observe other traffic, as stated in Notice No. 76-20.

One commenter expressed disbelief with the position that and increase of 50 knots in TCAs would improve the deck angle and consequently would have a favorable impact on the "see and avoid" principle. Another commenter stated that the elimination of the 200-knot airspeed restriction would be unwise and unsafe, even though aircraft operating in TCAs are under positive control. One commenter disputed the anticipated effect of increasing the speed restriction to 250 knots when he stated that a slower speed would allow more time for a crew to see and avoid other air traffic.

RESPONSE: The FAA has determined that this provision should not be adopted at this time, in order to permit further review of the safety objections raised by the commenters. This proposal in Notice No. 76-20 may be adopted at a later date.

§ 91.83(a)—FLIGHT PLAN INFORMATION: NUMBER OF PERSONS IN AIRCRAFT

COMMENTS: Nine commenters agreed with the proposal that, unless a passenger manifest is readily available, the flight plan should include the number of persons in the aircraft. One commenter objected, stating that any requirement that the number of persons in an airline aircraft be included in either computer-stored or nonstored flight plans would impose an unnecessary and unjustified burden on the airlines. No commenter objected to the effect of the proposal, which is to extend the requirement to list the number of persons in the aircraft beyond international flights.

RESPONSE: The FAA agrees that to require passenger information on airline stored and nonstored flight plans would be burdensome and unnecessary. There are times when the actual number of passengers boarded is not known until departure time or beyond. At that point, the flight plan has usually been filed or computer stored. If a passenger manifest is not available in the latter situation, compliance with the proposal would require the filing of an amended flight plan for each departure. This was not the intended effect of the proposed change. This amendment makes it clear that the number of persons in the aircraft need not be furnished "where that information is otherwise readily available to the FAA."

§ 91.87—OPERATION AT AIRPORTS WITH OPERATING CONTROL TOWERS

COMMENTS: Ten persons commented on the proposal to amend the second sentence of § 91.87(g). Under the proposal, the parenthetical phrase "(air traffic and other conditions permitting)" would be removed and a provision would be added to clarify that a pilot may request ATC approval to use a runway other than the one designated for noise abatement purposes if he determines its use is required in the interest of safety. Only one commenter disagreed with the proposal. That commenter expressed the belief that the safe and efficient operation of all aircraft is best served by the present § 91.87(g) where the safety interest is not expressly the only justification for requesting the use of a runway other than the one assigned. The commenter felt that many other considerations are involved in the selection of the desired runway, such as economics, operational necessities, time, and fuel consumption.

RESPONSE: The FAA does not agree with the commenter's view of what is permitted under the current rule. Section 91.87(g) reflects the formal noise abatement runway use system. Under this system, the FAA ensures that the runway program in use is in consonance with noise abatement procedures, unless inconsistent with safety. Under the regulation, only safety considerations permit ATC to assign a runway other than the one designated for noise abatement purposes. This amendment is adopted to clarify that aspect of the current rule. No substantive change results. Like the current rule, § 91.87(g), as amended herein, does not authorize ATC to assign a runway, deviating from a formal runway use program, for reasons of cost, time, or fuel conservation. Aircraft operators desiring, for reasons other than safety, to use runways not included in a formal runway use program, should direct their requests to the airport proprietor.

§ 91.90(c)—REVOCATION OF REGULATION CONCERNING GROUP III TERMINAL CONTROL AREAS

COMMENTS: Sixteen comments were received on the proposal to revoke § 91.90(c), which establishes rules for operating in Group III TCAs, and to delete the references in § 71.12 to Group III TCAs. As already mentioned, the FAA is withholding final action on this and other changes dealing with Group III TCAs to ensure consistency with proposals concerning "Controlled Visual Flight" which are being separately developed.

ADOPTION OF THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended, effective April 16, 1979.

(Secs. 307, 313(a), and 601, Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a), and 1421); Sec. 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)).)

The Federal Aviation Administration has determined that this document is not significant under the criteria in Executive Order 12044 and set forth in Interim Department of Transportation Guidelines.

Amendment 91-156

Prohibition Against Use of Certain Reports Filed Under The Aviation Safety Reporting Program in FAA Enforcement Actions

Adopted: June 25, 1979 **Effective: July 1, 1979**

(Published in 44 FR 37624, June 28, 1979)

SUMMARY: The purpose of this amendment to Part 91 of the Federal Aviation Regulations is to set forth in the regulations the policy of the Administrator of the Federal Aviation Administration (FAA) which prohibits the use of certain reports submitted to the National Aeronautics and Space Administration (NASA) under the FAA Aviation Safety Reporting Program, or information derived therefrom, in any FAA enforcement action.

FOR FURTHER INFORMATION CONTACT:

Mr. Jonathan Howe, Deputy Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, telephone (202) 426-3773.

SUPPLEMENTAL INFORMATION

BACKGROUND

The Administrator of the Federal Aviation Administration is empowered and directed by the Federal Aviation Act to encourage and foster safety in air commerce. Pursuant to this authority the Administrator adopted a voluntary Aviation Safety Reporting Program designed to encourage the reporting and identification of deficiencies and discrepancies in the aviation system (40 FR 17775, April 22, 1975). The FAA utilizes the National Aeronautics and Space Administration (NASA) as a third party to receive and analyze the Aviation Safety Reports. This cooperative safety reporting program invites pilots, controllers, and other users of the National Aviation System or any person, such as maintenance personnel, to report to NASA actual or potential discrepancies and deficiencies involving the safety of aviation operations. The reporting program and reporting system, as modified effective July 1, 1979 (44 FR 25279, April 30, 1979), is described in FAA Advisory Circular 00-46B, published elsewhere in this edition of the *Federal Register*.*

As noted in the Advisory Circular, the receipt, processing, and analysis of the reports by NASA ensures the anonymity of the reporter and of all parties involved in a reported occurrence or incident. The FAA does not seek and NASA will not release or make available to the FAA any report filed with NASA under the safety reporting program, or other information that might reveal the identity of any party involved in the occurrence or incident reported to NASA. The Administrator of the FAA further believes that the inclusion in the Federal Aviation Regulations of his policy that the reports filed with NASA (or information derived therefrom) cannot be used by the FAA for enforcement purposes would further encourage users of the aviation system to file reports. This amendment sets forth that policy in new § 91.57.

Since this amendment relates to an enforcement policy of the Administrator of the FAA under the Federal Aviation Act of 1958 and since the revised Aviation Safety Reporting Program to which it relates becomes effective July 1, 1979, I find that notice and public procedures thereon are unnecessary and that good cause exists for making this amendment effective in less than 30 days.

ADOPTION OF THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended, effective July 1, 1979, by adding a new § 91.57.

(Secs. 313(a), 601 and 603 of the Federal Aviation Act of 1958 (49 U.S.C. Sections 1354, 1421, and 1423); and Sec. 6(c) of the Department of Transportation Act (49 U.S.C. Section 1655(c)).)

NOTE: The FAA has determined that this document is not significant under the criteria in Executive Order 12044 and set forth in "Department of Transportation Regulatory Policies and Procedures" published in the Federal Register February 26, 1979 (44 FR 11034).

* [Editorial Note: As published in 44 FR 47625, June 28, 1979.]

Amendment 91-157

Airworthiness Review Program—Minimum Equipment Lists (MEL)

Adopted: July 18, 1979 **Effective: November 1, 1979**

(Published in 44 43174, July 26, 1979)

SUMMARY: The purpose of this amendment is to adopt a regulatory mechanism by which general aviation operators may obtain approval to operate, under certain conditions, their multiengines aircraft with certain instruments and equipment inoperable that are not necessary for safe operation. This amendment is in response to public proposals submitted as part of the Airworthiness Review Program. The amendment standardizes and simplifies the regulatory procedures applicable to operators with inoperable instruments and equipment when those items are not needed in the interest of safety.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: This amendment is the eighth in a series of amendments issued as part of the Airworthiness Review Program. The following amendments have previously been issued as part of that program:

Title	*FR Citation*
Form Number and Clarifying Revisions	(40 FR 2576; Jan. 14, 1975)
Rotorcraft Anticollision Light Standards	(41 FR 5290; Feb. 5, 1976)
Miscellaneous Amendments	(41 FR 55454; Dec. 20, 1976)
Powerplant Amendments	(42 Fr 15034; March 17, 1977)
Equipment and Systems Amendments	(42 FR 36960; July 18, 1977)
Flight Amendments	(43 FR 2302; Jan. 16, 1978)
Airframe Amendments	(43 FR 50578; Oct. 30, 1978)

The amendment now being issued is based on Notice 75-20, which was published in the Federal Register on May 20, 1975 (40 FR 22110). Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all matter presented. The more significant comments received in response to Notice 75-20 are discussed below. Based on those comments and after further review within the FAA, significant substantive changes have been made to the proposed rules, and those changes are also discussed below.

BACKGROUND

As indicated in Notice 75-20, modern aircraft are being operated with increasing amounts of installed equipment not essential for safe operations under all operating conditions. Much of that equipment is required for certain kinds of operation (such as VFR day or IFR) or for certain types of operating conditions (such as operations in icing conditions). Other equipment may be installed in the aircraft for the convenience of the operator. For whatever purpose installed, the aircraft must, with the installed equipment, continue to meet the regulatory standards under which it was type certificated, and the equipment, itself, must meet the applicable requirements in those standards.

In connection with the foregoing, § 21.181(a)(1) of the Federal Aviation Regulations provides, in pertinent part, that a standard airworthiness certificate for an aircraft is effective as long as the maintenance, preventive maintenance, and alterations are performed in accordance with Parts 43 and 91, and § 91.27(a) prohibits aircraft operations unless the aircraft has a current airworthiness certificate. Section 91.165 provides that aircraft must be regularly inspected and that between those inspections defects must be repaired in accordance with Part 43. Under § 43.13, the person maintaining an aircraft must ensure that the aircraft is at least equal to its original or properly altered condition following maintenance. Also in this connection, § 91.29 prohibits the operation of an aircraft unless it is in an airworthy condition.

Those provisions in conjunction with the aircraft type certificate act to prohibit the operation of an aircraft with certain equipment deviations (i.e. conditions involving installed inoperable equipment or equipment not installed in the aircraft but required for an aircraft operating condition or kind of operation, under the aircraft's type certificate). Therefore, even though an item of equipment may have been installed purely for the convenience of the operator, aircraft operations with that item of installed equipment inoperable might be prohibited although the aircraft could be safely operated if the equipment were to be removed.

With respect to equipment required for a particular kind of operation or operating condition, if this equipment is inoperable, other kinds of operations of the aircraft should not be prohibited where the equipment is not needed for safety. However, operation of an aircraft in such a case should be permitted only if the pilot is aware of the status of the equipment and appropriated operating conditions and limitations are available to the pilot to indicated the procedures that must be followed for the safe operation of the aircraft. A prohibition would be appropriate in circumstances where a pilot might tend to rely on an inoperable item of installed equipment.

In complying with the regulations referenced above, operators subject to the operating rules of Part 91 have sometimes been burdened with delays and increased costs attributable to the need to expeditiously repair or replace inoperable instruments or equipment which under the circumstances existing at the time were not needed in the interest of safety. This has not been the case with respect to air carriers and commercial operators of large aircraft since under the applicable operating rules, specifically §§ 121.303(d) and 121.627, a mechanism exists for permitting continued flight with inoperable instruments and equipment under appropriate circumstances. Recently, this regulatory mechanism, commonly referred to as the Minimum Equipment List or "MEL," has been adopted within revised Part 135 for multiengine aircraft operated by air taxi operators (see § 135.179 at 43 FR 46797; October 10, 1978).

To provide relief for Part 91 operators, Notice 75-20 contained proposals for rules that would amend the type certification requirements to provide for the development of and "Equipment Deviation List" (EDL) which would contain the information needed by pilots to operate their aircraft safely in particular circumstances with specified instruments and equipment inoperable. Amendments to the airworthiness certification parts, as well as to Parts 43, 91, and 135, were proposed in Notice 75-20 to effectuate the EDL concept. The EDL, as proposed, would be prepared generally by the aircraft manufacturer for each aircraft type. In this respect the EDL concept differed sharply from the existing MEL mechanism which has its foundation in the operating rules and is developed through a joint effort of the operators, FAA, and the aircraft manufacturer.

DISCUSSION OF COMMENTS

Fifteen comments were received in response to Notice 75-20. A number of commenters were associations which presented the views of manufacturers and operators. Several comments were also received from foreign airworthiness authorities. In general, those who commented on Notice 75-20 were in favor of rule making to provide relief for Part 91 operators to permit, under appropriate circumstances, operations with inoperable equipment and instruments. However, a majority of those commenters in favor of rule making futher indicated that the proposed EDL procedure would be unnecessxrily burdensome, time-consuming, and costly for both the industry and the FAA. The reasons given fall essentially into three broad categories.

Since the EDL would become a type certification requirement, the burden of providing it would fall solely on the aircraft manufacturer. However, the commenters argued that the manufacturer before delivery of an aircraft cannot know the maintenance capability, probable atomospheric conditions, topographical parameters, or airport facilities associated with the aircraft purchaser's operation. In contrast, under the MEL procedures used by Part 121 operators, the development of the MEL is primarily accomplished by operationally-oriented people (the operator and the FAA) who are in the best position to make an assessment of operational conditions.

Second, it was contended that any change to an EDL would necessitate an amendment of the aircraft type certificate. Based on their experience, the commenters asserted that obtaining FAA approval of such amendments is time-consuming and costly whereas, under current MEL procedures, FAA approval for an MEL change can be obtained quickly and conveniently.

Third, in the commenters' view, an aircraft manufacturer would find it difficult to develop a single EDL that would apply to all aircraft configurations which might be covered under one type certificate because of the numerous equipment options offered and the likelihood of modifications being incorporated in the field.

In summation, most of the commenters suggested that the FAA could attain the objective of Notice 75-20 more simply by adopting an enabling regulation which would make MEL privileges available to those who operate under Part 91. However, one commenter believed that the use of MELs should be limited to operators who have an established program of operational and maintenance control and who are adequately monitored by the FAA. Several other comments also indicated a desire for the application of regulatory restraint by the FAA in granting relief.

In light of these comments, and after further review, the FAA has concluded that adoption of the EDL regulations proposed in Notice 75-20 would unnecessarily burden and restrict the general aviation industry. In accordance with Executive Order 12044, the regulatory process must ensure that compliance costs, paperwork, and other burdens on the public are minimized and that meaningful alternatives are considered and analyzed before a regualtion is issued. Based on these considerations, the FAA has determined that the most practical regulatory approach to provide needed relief is to adopt the existing MEL concept for use by general aviation operators. Such a course parallels the approach already taken by the FAA in the recently revised Part 135. In this connection it should be noted that the MEL regulatory approach adopted in Part 135, and being adopted here for Part 91, has built-in restraints and controls which will provide the necessary level of safety for all general aviation operators.

DISCUSSION OF AMENDMENT

This amendment adopts a new § 91.30 to Part 91 which conforms, in many respects, to the recently adopted § 135.179 in revised Part 135. Under the rule, Part 91 operators could, with specified exceptions, obtain the authority to operate an aircraft with inoperable instruments or equipment. To obtain that authority, the operator would be required to obtain a letter of authorization from the FAA to use an MEL. In addition to requiring that current aircraft status records be made available to the pilot, the rule specifies that operators conducted under the MEL must be conducted in accordance with the conditions and limitations contained in the MEL as well as in the letter authorizing its use. In this way, the necessary level of safety will be maintained.

Procedurally, the new rule allows operations with inoperable instruments and equipment that are covered under an MEL without violating §§ 91.27, 91.29, and 91.165. The MEL and the letter of authorization for use of the MEL constitute a supplemental type certificate for the aircraft under which inoperable instruments and equipment, not required for the specific operation being conducted, are not considered to be airworthiness defects. In this situation, the aircraft conforms to its supplemental type certificate and continues to be in an airworthy condition with a valid airworthiness certificate provided all the conditions and limitations specified in the MEL and letter of authorization are met.

An MEL developed for use under new § 91.30 may not include equipment and instruments that are essential for safe operation under all operating conditions and that are required, either specifically or otherwise, for the aircraft to meet the airworthiness standards under which it was type certificated. In order to include instruments and equipment on an MEL, the operator must show that the aircraft can comply with the airworthiness standards although the instruments and equipment are inoperable. In this connection, an important element of the MEL system is the requirement that aircraft records be made available to the pilot describing the instruments and equipment that are inoperable.

It should be noted that new § 91.30 applies to operators of multiengine aircraft, consistent with § 135.179. However, based on the experience that will be gained during the administration of §§ 135.179 and 91.30, the FAA will reevaluate the need for, and the benefits to be gained from, extending the new MEL rule to single-engine aircraft.

A person who wishes to operate a multiengine aircraft under § 91.30 may request authorization from the FAA Flight Standards District Office having jurisdiction over the area in which that operator is located. Upon a showing by the operator concerning the type of operations planned, the District Office will advise as to the conditions which must be met and where appropriate will assist in the development of an MEL applicable to the specific aircraft.

In view of the severe burden placed on Part 91 operators because of the lack of authority to use MELs and the increasing number of exemption requests being processed concerning the use of MELs by Part 91 operators, the FAA has determined that relief is appropriate without further delay. While the rule being adopted differs from that proposed in Notice 75-20, the underlying rationale for the rule and the issues involved are the same. Those issues have been addressed in the comments received. Because of this and since no additional burden is being placed on any person, additional notice and public procedure are impracticable and unnecessary.

ADOPTION OF THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended by adding a new § 91.30 effective November 1, 1979.

(Secs. 313(a), 601, and 603 Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, and 1423); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655 (c))).

The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy to the final evaluation prepared for this document is contained in the docket. A copy of it may be obtained by writing to:

Edward C. Wood
Airworthiness Review Branch, (AFS-910)
Flight Standards Service, Federal Aviation Administration
800 Independence Avenue, S.W., Washington, D.C. 20591
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Amendment 91-158

ATC Transponder Equipment—Correction

Adopted: July 27, 1979 **Effective: August 6, 1979**

(Published in 44 FR 45921, August 6, 1979)

SUMMARY: On March 15, 1979, the FAA published Amendment 91-155 to the Federal Aviation Regulations (44 FR 15654). That amendment, in part, deleted obsolete compliance dates from FAR 91.24(b)(1)-(b)(4), but inadvertently failed to delete a reference to those dates in § 91.24(b).

This correction deletes the remaining reference in § 91.24(b) to compliance dates. It is editorial in nature, and achieves consistency with the intent of the amendment.

FOR FUTURE INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

Amendment 91-155, published March 15, 1979, in the FEDERAL REGISTER, was part of the 1975-1976 Operation Review Program which was initiated by the FAA because of technological advances in aviation and growth in aeronautical activity.

One of the changes made by Amendment 91-155 was to delete from § 91.24 the obsolete dates for complying with the required use of ATC transponder and automatic pressure altitude reporting equipment. These dates were deleted from § 91.24(b)(1)-(b)(4), but the lead-in paragraph to § 91.24(b), which made reference to these dates was not changed. This amendment, accordingly, corrects § 91.24(b) by deleting the reference to compliance dates which have already been deleted. No substantive change results.

Since this action merely achieves editorial consistency with Amendment 91-155, and is corrective and nonsubstantive in nature, I find that notice and public procedure regarding this action are impractical and unnecessary. Further, since it would not be in the public interest or consistent with sound regulatory practice to delay making this editorial correction to the amendment, good cause exists for making it effective in less than 30 days after publication.

ADOPTION OF AMENDMENT:

Accordingly, § 91.24(b) is amended, effective August 6, 1979, by deleting the following language in the first sentence:

> ". . . no person may operate an aircraft in controlled airspace after the applicable dates prescribed in subparagraphs (b)(1) through (b)(4) of this paragraph . . ."

and substituting in its place the following language:

> ". . . no person may operate an aircraft in the controlled airspace prescribed in subparagraphs (b)(1) through (b)(4) of this paragraph . . .".

(Secs. 307, 313(a), and 601, Federal Aviation Act of 1958, as amended (49 U.S.C. § § 1348, 1354(a) and 1421); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE: The Federal Aviation Administration has determined that this document involves a proposed regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979).

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Amendment 91-159

Airworthiness Standards: Reciprocating and Turbopropeller-Powered Small Multiengine Airplanes—Increase in Approved Takeoff Weights and Passenger Seating Capacities

Adopted: September 7, 1979 **Effective: October 17, 1979**

(Published in 44 FR 53723, September 17, 1979)

SUMMARY: This amendment adopts a new Special Federal Aviation Regulation (SFAR) which prescribes additional airworthiness standards applicable to existing propeller driven multiengine small airplanes to allow their type and airworthiness recertification at weights in excess of the limitation of 12,500 pounds maximum certificated takeoff weight, or with an increase in the number of passenger seats, or both. The rules applicable to air taxi and commercial operators (Part 135) are amended to allow the operation of airplanes certificated under the SFAR. In addition, the operating rules (Parts 91 and 135) are amended to require that airplanes certificated under the SFAR at weights in excess of 12,500 pounds meet updated interior material flammability requirements within one year of initial airworthines certification. These amendments are intended to allow the design capabilities of certain existing small airplanes to be more fully utilized. They are also designed to increase aircraft availability for the commuter market that is burgeoning since enactment of the Airline Deregulation Act of 1978.

FOR FUTHER INFORMATION CONTACT:

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BACKGROUND

In general, under the Federal Aviation Regulations (FARs) relating to certification, airplanes are treated, as they hve been for many years, as either small or large. Numerous pilot, operating, and maintenance requirements of the FARs utilize the same small and large distinction. In addition, the International Civil Aviation Organization (ICAO) uses this weight distinction. The distinction is based on the maximum certificated takeoff weight (MCTW) of the airplane. For airplanes with an MCTW of 12,500 pounds or less, the airplane is defined in § 1.1 of the FARs as small. Airplanes with an MCTW of more than 12,500 pounds are defined as large.

The 12,500 pound weight distinction, adopted in 1953, was based in part upon certain airplane and powerplant design considerations which were then considered significant. Over the past 26 years, however, numerous additional operational factors have developed and must be considered in airplane design. In fact manufacturers have asserted that the 12,500 pound weight distinction no longer provides an appopriate demarcation between small and large airplanes.

A number of recent requests for exemption or for rule change concerning this weight distinction have been made by operators who utilize airplanes with an MCTW of exactly or very near 12,500 pounds. The operators assert that these airplanes are capable of operating safely at maximum takeoff weights in excess of 12,500 pounds. In addition, they have indicated that this weight limit has the effect of reducing safety margins by preventing the installation of additional navigational equipment and by preventing the installation of increased fuel reserves. Based on these comments and requests and the claimed overall safety benefit, the FAA issued a specific proposal (Notice No. 78-14, 43 FR 46734, October 10, 1978) to allow certification and operation of certain small airplanes at MCTW's in excess of 12,500 pounds.

Current airworthiness standards exist for two basic designations of airplanes: Part 23 for airplanes 12,500 pounds or under having nine or less passenger seats and Part 25 for transport category airplanes. Commuter airlines and air taxi operators in the United States, which have grown substantially in recent years, have demonstrated a need for airplanes which are not fully transport category but exceed the size limitations of Part 23.

Recognizing the need for improved standards for airplanes intended for commuter operations, the Administrator initiated a three-phase program. The first phase was the issuance of a revised Part 135, "Air Taxi Operators and Commercial Operators" on September 26, 1978 (43 FR 46742, October 10, 1978) which aligned the rules for those operations more closely with those of Part 121. The second phase was the initiation of the Light Transport Airplane Airworthiness Review (43 FR 60846, December 28, 1978) which will result in a separate set of airworthiness standards for multiengine airplanes with a suggested 30 passenger seating capacity and maximum gross weight of about 35,000 pounds. The third phase was the issuance of Notice 78-14 initiating this rulemaking action by proposing an increase in approved takeoff weights and passenger seating capacities for existing small airplanes that meet stated requirements.

Notice 78-14 proposed special certification requirements and changes to operating rules applicable to air taxis and commercial operators of small airplanes which would allow the design capability of certain existing propeller-driven multiengine small airplanes to be more fully utilized. The proposed certification requirements are of an interim nature and therefore formulated as a Special Federal Aviation Regulation (SFAR).

The essential provisions that were proposed in Notice 78-14 are being adopted by this amendment. The new rules will allow the certification of propeller-driven multiengine small airplanes with a passenger seating configuration of between 10 and 19 seats that were originally type certificated in accordance with Part 23 of the FARs in effect on March 13, 1971 or later. The new rules will also allow the certification and operation, with appropriate restrictions and limitations, of small propeller-driven multiengine airplanes at maximum takeoff weights in excess of 12,500 pounds.

The interim nature of the SFAR is reflected in the same limits imposed. The amendment provides that an application for aircraft supplemental or amended type certification under the SFAR must be filed within two years after the effective date of the SFAR, while production of airplanes certificated with maximum takeoff weights in excess of 12,500 pounds will be limited to 10 years after the effective date of the SFAR. The 10 year period is intended to provide the time needed to develop the new FAR Part 24 and for airplane manufacturers to demonstrate compliance with the new part.

The international implications of the amendment should be noted. The United States as a contracting State of ICAO is under agreement to comply with the Covention on International Civil Aviation. Annex 8 to the Convention contains international standards of airworthiness applicable to certification of airplanes having an MCTW in excess of 5,700 kg (approximately 12,500 pounds). The airworthiness standards set forth in the SFAR are not intended to and do not meet the Annex 8 requirements. Therefore, airplanes certificated in accordance with the SFAR that operate at weights in excess of 5,700 kg would be prohibited from international navigation unless specifically allowed by the countries of overflight or entry. These airplanes' airworthiness certificates would be appropriately endorsed. In addition, the international airman licensing and aircraft operating provisions in Annexes 1 and 6 to the Convention on International Civil Aviation must be met to operate these airplanes on international flights. The FAA is aware of the potential problems that this dichotomy will create. It is the FAA's intention to have this matter brought to ICAO's attention for resolution at an early date.

Turbojet powered multiengine airplanes are not covered in this amendment because these high performance airplanes require more stringent airworthiness provisions than those applicable to propeller driven multiengine small airplanes. Therefore, at the present time, Part 25 of the FARs, where applicable, continues to be an appropriate standard for these airplanes.

Interested persons have been afforded an opportunity to participate in the making of these amendments and due consideration has been given to all matter presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review within the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and the reasons for them are the same as those contained in Notice No. 78-14.

These amendments implement the President's directive (Executive Order 12044) that regulations be as simple as possible and not impose unnecessary burdens on the economy or on the regulated public. They also are designed to promote the public interest by increasing safety, availability of aircraft, and efficiency.

DISCUSSIONS OF COMMENTS

Twenty-two individual sets of comments were submitted in response to Notice 78-14. Many of these addressed more than one aspect of the proposals. While the great majority of the commenters were in general agreement with the objectives of the proposals, a number of them offered criticisms or suggested changes to the proposed rules or requested clarification and guidance on compliance with the rules.

One commenter recommended that the SFAR not be adopted on the ground that small airplane airworthiness standards would be applied to airplanes of over 12,500 pounds which up to this time have been required to meet transport category standards. The FAA does not agree. The SFAR incorporates additional airworthiness requirements designed to provide the necessary level of safety for a type of airplane that has not heretofore had regulations specifically developed for it. As noted in the background discussion, the SFAR provides interim standards to enable greater utilization of existing airplanes when those airplanes meet the higher standards of the SFAR even though they may not meet transport category certification requirements.

Among the comments received were recommendations for various requirements not proposed in the notice. Among these were recommendations for less than the minimum number of required exits in freight-only airplanes, for determination of takeoff distance based on criteria different than currently required, for bird strike protection in front of pilots, for establishment of life limits for components not presently subject to such limits, and freedom from flutter after various trim tab failures. None of these recommendations were supported by justification from a safety standpoint for imposing the additional burden or lesser standard involved and the FAA does not have information to indicate the need for such requirements at this time.

The comments related to specific elements of the proposal are discussed below under the like-numbered paragraphs of the SFAR and the applicable Part 135 sections as proposed.

1. *Special Federal Aviation Regulation*

Section 1. *Applicability.*—Six commenters questioned the need to impose the additional performance requirements of Appendix A, Part 135, in order to achieve an increase in passenger seating capacity or an increase in maximum certificated takeoff weight (MCTW). These commenters asserted that the requirements contained in SFAR 23 are adequate. At the other extreme, one commenter recommended that Part 25 performance requirements be made applicable for weights exceeding 12,500 pounds. Such generalized comments, however, do not address the reasons for the proposed interim SFAR standards which have been set forth in the various notices explaining the Administrator's three-phase program or provide a basis for now altering the proposals.

In more specific vein, one commenter believed it inconsistent that under the proposal some 19 passenger airplanes would have to comply with the entire new SFAR whereas others would have to comply only with Appendix A to Part 135. This commenter recommended that all 10-19 passenger airplanes, regardless of weight, comply with the proposed requirements that would be applicable to airplanes originally type certificated to Part 23 regulations in effect on March 18, 1971, or later. Under the proposal, airplanes to be certificated at MCTW over 12,500 pounds regardless of the number of passengers would have to meet not only the modified requirements of Appendix A but the additional requirements contained in the new SFAR.

The difference in certification requirements under the proposed SFAR is not dependent on the number of passengers but the MCTW of each airplane. Section 1.(a) of the SFAR is limited to those airplanes that do not exceed 19 passenger seats, have a MCTW of 12,500 pounds or less, and were originally type certificated to include Amendment 23-10. Section 1.(a) has been clarified with respect to the weight limitations. Section 1.(b) on the other hand, and in response to another commenter's request for clarification, covers all normal category airplanes to be certificated at MCTW in excess of 12,500 pounds. Thus to certificate an Amendment 23-10 airplane for 19 passengers at an MCTW in excess of 12,500 pounds, the airplane would have to meet the requirements of section 1.(b). Since the added requirements of section 1.(b) go with the increased weight above 12,500 pounds, these is no inconsistency in the applicability.

With respect to its applicability for other than Amendment 23-10 airplanes, the new SFAR does not apply to a normal category airplane, originally type certificated in accordance with Part 23 in effect prior to March 18, 1971 (i.e. not including Amendment 23-10), that is to be certificated for an increase in passenger seating capacity unless that airplane is to be certificated for a maximum takeoff weight in excess of 12,500 pounds. If the weight does not exceed 12,500 pounds, the regulations incorpoated in the type certificate apply to an increase in passenger seating capacity as well as to an increase in MCTW that does not exceed 12,500 pounds. Furthermore, this rulemaking action is not intended to impose retroactive requirements on airplanes of older type design, as questioned by one commenter, when there is to be no change in the number of seats or MCTW. It should also be noted that under section 1.(b) of the SFAR, there is no limitation on the number of passenger seats for which the airplane may be certificated when the MCTW exceeds 12,500 pounds although regulations governing operations impose other limitations on the number of passengers. Section 1.(b) has been changed to clarify that the passenger seating configuration may be increased if the applicant so requests.

One commenter objected to provisions of the SFAR which were interpreted as allowing increased weight and derogated performance at the expense of safety. However, contrary to the commenter's concern, an airplane must comply with the minimum performance standards as well as the other requirements of the SFAR, under which it will be safe to operate notwithstanding the increase in weight and lessened performance. Under the SFAR, if increased weight prevents the airplane from meeting the minimum performance requirements, the airplane does not meet the required level of safety and it would not be certificated.

With respect to section 1.(b), six commenters contended tht compliance with the performance requirements of Appendix A of Part 135 at all operating weights below 12,500 pounds, would unfairly penalize airplane performance. Accordingly to these commenters, the Appendix A performance requirements, although appropriate for MCTW above 12,500 pounds, place additional unneeded restrictions on airplane weight on hot days, at high altitudes, and on short runways when the takeoff weight does not exceed 12,500 pounds in any event. Asserting that such restrictions are inconsistent with the stated purpose of the proposal to allow full utilization of an airplane's design capabilities, they recommended that SFAR 23 performance standards apply to weights up to 12,500 pounds and Appendix A performance standards to weights above 12,500 pounds.

The FAA agrees with the analysis that shows compliance with Appendix A performance requirements may be unnecessarily restrictive at weights of up to 12,500 for airplanes that were not to meet Appendix A as a type certification requirement. Moreover, for airplanes to be certificated under the SFAR at maximum certificated takeoff weights of more than 12,500 pounds, it was not the FAA's intent to change the certification basis of such airplanes for takeoff weights of 12,500 pounds or less. Thus, where an airplane's preexisting certification basis does not include Appendix A but the airplane with 10 or more passenger seats is qualified for operations under Part 135 or is certificated under Part 23 in effect prior to Amendment 23-10 and is to be used only in Part 91 operations, there appears to be no safety reason why the airplane's certification basis needs to be changed for weights at which the airplane is currently operating. Although the commenters emphasized only the performance requirements of Appendix A as being unnecessarily restrictive at weights below 12,500 pounds, the FAA has determined that any of the requiements of Appendix A may be included within the exception for an airplane whose certification basis provides the required level of safety, regardless of the number of passengers at weights up to 12,500 pounds. Therefore, an exception has been added as section 5.(b) of the SFAR which provides relaxation from the requirements of the notice to allow compliance with the regulations incorporated in the type certificate in lieu of compliance with Appendix A at takeoff weights of 12,500 pounds or less for specified airplanes. For all takeoff weights above 12,500 pounds the airplane must meet the Appendix A requirements as modified by the other section 5 exceptions.

Section 1.(b)(3) of the SFAR requires compliance with sections 7 through 14 of the SFAR as an additional condition for certification at MCTW in excess of 12,500 pounds. For reasons similar to those discussed above in connection with Appendix A requirements, it was the intent that these requirements not constitute a new certification basis for takeoff weights at or below 12,500 pounds but rather provide additional requirements for takeoff weights in excess of 12,500 pounds. Section 1.(b)(3) has been amended to make this clear.

Two commenters asked what modifications it would be permissible to make in order to take advantage of the proposal. It was not the intent to identify or otherwise limit the specific modifications that might be necessary in any particular case to meet the proposal. Any modification that would enhance an airplane's ability to meet the applicable requirements of the new SFAR would be permissible. In this connection, however, it should be noted that the new SFAR by its terms is limited to amended and supplemental type certification of airplanes previously certificated in the normal category. Therefore, the limitations contained in § 21.19, and in Subparts D and E of Part 21 relative to such certification, also apply.

One commenter objected to the proposal in the belief that it would increase the noise contours due to the added weight requiring more power for takeoffs of airplanes recertificated under section 1.(b). On the other hand, two commenters suggested that the maximum allowable noise should be increased above the levels allowed for small airplanes as proposed in the notice. The considerations involved in these comments result from proposed SFAR section 1.(c) which would define an airplane certificated under section 1.(b) as a small airplane for purposes of Part 36. The comments do not explain how or why persons on the ground exposed to the modified airplanes would be subjected to more noise than is now permitted for the existing certificated airplanes.

The proposal will not increase noise contours. The SFAR standards must be met regardless of engine power or thrust available or used for takeoff. Therefore, the effect of the increased weight on takeoff noise output must be accounted for and kept within present noise limits. The comments do not provide any basis for modifying the proposal with respect to noise.

With further reference to paragraph 1.(c), since "small aircraft" are defined in Part 1, the intent was that airplanes certificated under section 1.(b) be considered small airplanes for purposes of the parts listed rather than be "defined" as small airplanes. Accordingly, a nonsubstantive change has been made in section 1.(c) to clarify the point. The definitions of small and large aircraft set for in Part 1 remain unchanged.

Finally, upon review of section 1.(c) by the FAA, it is noted that Part 139 was inadvertently omitted from the listing of Parts under which the an airplane certificated under section 1.(b) of the SFAR would be considered a small airplane. FAR § 139.12a provides for the issuance of a limited airport operating certificate for an airport serving CAB-certificated air carriers conducting only unscheduled operations with small aircraft. Unless the newly certificated aircraft are "small" aircraft, airports serving them would no longer be eligible for the limited certificate and would have to obtain a regular or full certificate. For this reason, Part 139 is added to the listing in section 1.(c).

2. *Eligibility.* No unfavorable comments were received on the proposal and the section is adopted without substantive change.

3. *Production Limitation.* On commenter recommended that the proposed 10-year limitation for receiving original airworthiness certificates based on an amended or supplemental type certificate issued under the SFAR be increased and made indefinite. This commenter cited the high cost of certification as the only justification. The FAA agrees that the high cost of certification is one factor to be considered. However, in view of the proposed Part 24, the intent is that the SFAR provisions be self-limiting as to time. It is the intent of Part 24 to construct a regulation that reflects the state of the art for the entire aircraft. Therefore, the reason for the limitation is to ensure that once Part 24 aircraft are available, these will be the aircraft on the market because Part 24 aircraft will represent a significance safety increase over the aircraft produced pursuant to this SFAR.

Another commenter requested verification of his understanding that once an airplane receives an airworthiness certificate under the SFAR procedures, no life limit is otherwise imposed by the SFAR. That understanding is correct. The 10-year limitation applies only to obtaining the initial airworthiness certificate under an amended or supplemental type certificate issued under the SFAR. Once issued, the duration of the airworthiness certificate is governed by the same rule applicable to other standard airworthiness certificates.

Both of the foregoing comments indicate there may have been some ambiguity in the proposed rule due to the reference to an "original" airworthiness certificate. Actually, in a case where an aircraft is modified to conform to an amended or supplemental type certificate, it is possible that there may not be an issue of an original airworthiness certificate. The intent was to impose the 10-year limit on obtaining whatever form of airworthiness certificate results from the changed type certificate. Section 3 has therefore been clarified by specifying an original or amended airworthiness certificate.

4. *Restrictions.* No unfavorable comments were received on the proposal and the section is adopted without substantive change.

5. *Exceptions.* No unfavorable comments were received on section 5.(a) and it is adopted without substantive change.

Section 5.(b) contains the general exception to the requirements of Appendix A of Part 135 for certain airplanes. This was discussed in connection with section 1.(b) of the SFAR concerning applicability of the SFAR to airplanes with an MCTW of over 12,500 pounds.

With reference to landing performance requirements, one commenter stated that the proposal could be interpreted to require a double application of the effective runway length factor specified in § 7 of Appendix A of Part 135. The ambiguity results because the airplanes are also subject to the requirements of §§ 135.385 and 135.387 which specify like factors. The problem does not arise outside the SFAR since the landing requirements of Appendix A apply only to normal category airplanes while those of §§ 135.385 and 135.387 apply only to large transport category airplanes. The SFAR as proposed could be interpreted to mean that airplanes would be subject to both sets of requirements. The FAA agrees that the effective runway length requirement should be clarified since there is no intent that the factor be applied twice. In addition, the proposed landing performance requirements did not require consideration of wind corrections. [For these reasons, the proposed requirement to comply with § 7, as well as with related § 19.(c), of Appendix A of Part 135 has been deleted and the applicable landing performance requirements, not covered in §§ 135.385 and 135.387, are included in a new section 5.(c) of the SFAR.]

The fatigue evaluation standards set forth in proposed section 5.(b) [section 5.(d) as adopted] are stricter than those in Appendix A and apply where the MCTW exceeds 12,500 pounds. One commenter recommended that the proposed fatigue requirement also be applied to those airplanes whose passenger seating capacity is increased above nine even though the weight does not exceed 12,500 pounds. However, the commenter presented no justification to show that the current safety requirements are inadequate or that the fatigue evaluation standards should be extended to airplanes of 12,500 pounds or less.

Another commenter objected to the proposal which would allow fatigue strength evaluation to be conducted by analysis alone. It was contended that tests should be required because of adverse service experience reported with surplus military aircraft which had sustained structural damage due to overloading. However, such experience is not relevant to type certification standards since evaluation of the structure must be made under the conditions and loads expected in service. The FAA does agree that there should be limitations on the analysis-alone evaluation and a recent amendment to § 23.572(a)(1) provides such a limitation. Accordingly, the fatigue strength investigation requirement is modified to be consistent with the current Part 23 type certification requirement by specifying that analysis alone is acceptable only when it is conservative and applied to simple structures.

Section 5.(c) proposed additional door and exit requirements considered necessary for safety at the higher weights. Two commenters suggested that movable seat backs be allowed to obstruct window-type emergency exits but presented no evidence to show that an equivalent level of safety would be achieved. The commenters also questioned the need for the door locking mechanism to be visible from within the fuselage; however, even though the proposal requires visual inspection by crewmembers, it does not specify that the inspections must be conducted from within the airplane. Thus, external inspection, as of cargo doors, could be made though appropriate openings or transparent coverings. Finally, one commenter was of the opinion that the number of emergency exits could be reduced so long as the 90-second evacuation test was met; however, those are not alternative requirements, and no justification was given for not meeting both. The door and exit requirements are adopted as substantively proposed and designated section 5.(e).

No unfavorable comments were received on the lighting strike protection requirements proposed in section 5.(d) and it is adopted as section 5.(f) without substantive change.

Three commenters questioned the need for the fire containment requirement of section 5.(e) when there are other requirements that speak to fire extinguishment. However, extinguishment and containment are separate requirements. Containment prevents an engine fire from spreading to the rest of the airplane before the fire can be extinguished. With respect to containment, the proposal referred to burn-through of the external skin whereas any burn-through that could create additional hazards is the condition to be prevented. The paragraph has been amended to make this clarification. Several commenters suggested the use of heat-resistant coatings in place of fireproof cowlings; however, the basic requirement is for containment without specifying the means. A heat-resistant coating that merely delays burn-through would not be in compliance with the requirement. Finally, a number of commenters objected to applying the fire containment requirement to turbine-powered airplanes, but their asserted lack of fire history statistics does not justify avoidance of a safety standard intended to cover the over 12,500 pound weight category for which there is no actual operating experience. The requirements are adopted as substantively proposed and designated as section 5.(g).

Section 5.(f) proposed that the flammable fluid fire protection requirements of Part 25 be used in lieu of section 57 of Appendix A. Seven commenters questioned the need for and practicability of complying with the more stringent requirements of Part 25. However, in this connection, it should be noted that the regulatory intent is for all aircraft to conform to a uniform minimum standard for flammable fluid fire protection. To this end, FAR Parts 23, 27, and 29 were amended after the issuance of Notice 78-14 to be consistent with updated Part 25 requirements. At the time of issuing Notice 78-14, the minimum acceptable standards for flammable fluid fire protection for the new category SFAR airplanes was contained in § 25.863 then in effect. The commenters have presented no justification for relaxing the safety standard set forth in the Notice, and section 5.(f) [redesignated 5.(h)] is adopted as proposed.

6. *Additonal requirements—general.* This section states, in effect, that the additonal requirements specified in succeding sections of the SFAR apply to airplanes to be certificated at MCTW in excess of 12,500 lbs. Two commenters raised general objections—one that such requirements should not apply if the passenger capacity does not exceed 19, the other that retrofit to such standards would be costly in weight and dollars. The FAA does not deny that to meet the additional requirements may be costly, but the commenters presented no reasons why the requirements, considered collectively, would not be necessary in the interest of safety or why 19 passengers should be a cutoff point rather than 12,500 pounds. The FAA considers the SFAR requiements to be minimum safety standards necessary for the new category airplanes. Moreover, nothing compels exceeding a 12,500 pound MCTW so that compliance is a matter of choice with an operator who must decide if such compliance is economically feasible in his particular case.

Comments addressed to individual additional requirements are discussed below.

7. *Compartment interiors.* This section states various requirements relating to cabin materials, smoking, disposal receptacles, lavatories, and hand fire extinguishers. All the comments objecting to section 7 were directed to the requirement for materials. One group of commenters objected because of the alleged high cost to retrofit older airplanes and the alleged lack of history of in-flight fires on this type aircraft. Two other commenters contended that it would not be economically feasible to comply immediately with the interim material requirements.

The FAA does not agree that the cost of cabin interior materials to meet the flammability requirements of proposed section 7.(a) is sufficient justification for not imposing them. Neither have the commenters shown that the alleged lack of history of in-flight fires supports a withdrawal of the requirement. Actually there is no operating history for this new class of airplane and the commenters have not addressed the need for safety measures necessary to achieve the level of safety at the higher weights. The proposed cabin material requirements are the same as those specified for transport category airplanes under Part 25. The FAA does agree that it would be reasonable to grant additional time in which to install the materials. The burden of refurbishing the cabin materials would be substantially lessened if operators could take advantage of periods when their airplanes are down for extended periods.

In view of these considerations, the cabin material requirements of section 7 and the Appendix are deleted from the SFAR. In place thereof, the operating rules of Parts 91 and 135 are amended by adding a requirement that airplanes certificated under the SFAR at MCTW in excess of 12,500 pounds must meet the compartment interior material requirements of § 25.853(a), (b), (b-1), (b-2), and (b-3) within one year after receiving an airworthiness certificate under the SFAR.

8. *Landing Gear.* In response to one inquiry as to the applicability of § 25.721(b) to fixed landing gear airplanes, the rule requires compliance when one or more landing gear legs is not extended. Since this condition would not exist in a fixed landing gear airplane, the rule would not be applicable. Resubstantiation of fixed landing gear to Part 25 ground load standards, as questioned by that commenter, would not be necessary since the initial airplane certification under Part 23 is sufficiently conservative for a maximum zero fuel weight that does not exceed 12,500 pounds.

9. *Fuel system components crashworthiness.* This section requires compliance with certain Part 25 rules under various emergency landing conditions. There should be no confusion as to their applicability in the case of fixed landing gear airplanes as questioned by one commenter. Thus, § 25,561(b)(2) clearly states that the wheels are retracted (where

applicable) and then specifies the inertia forces that may result. It is these inertia forces that the fuel tanks must be able to resist irrespective of the type of landing gear. Section 25.994, by its terms, is clearly not applicable to fixed landing gear airplanes since it refers specifically to the condition of wheel-up landing.

10. *Shutoff means.* No specific objection was made to this section and it is adopted substantively as proposed.

11. *Fire extinguishing systems.* The National Transportation Safety Board (NTSB) expressed the view that a fire detection system is a prerequisite to a fire extinguishing system. Under the proposal, turbopropeller-powered airplanes would be required to have a detector system in compliance with Part 135, Appendix A, as would multiengine reciprocating engine powered airplanes incorporating turbosuperchargers under current § 23.1203. However, older airplanes not covered by current § 23.1203 and those not equipped with turbosupercharger-equipped reciprocating engines would not be required under the proposal to have fire detection systems. The NTSB therefore recommended that the final rule require fire detection systems for all reciprocating-engine powered airplanes. The NTSB views were also expressed by another commenter. The FAA agrees. The intent of the proposal to provide adequate fire extinguishment can best be achieved by inclusion of the detecting system requirement. Moreover, without a detection system, airplanes that could be certificated under the proposed SFAR at the higher MCTW would be operating at a different and lower level of safety than that now applicable to Part 23 airplanes. Accordingly, to assure that necessary safety standards are applied uniformly to all airplanes eligible for certification under the SFAR, paragraph 11 is modified to include the requirement for a fire detection system in all airplanes.

A number of commenters objected to the requirement for the two-bottle discharge extinguisher capability in engine compartments. It was their contention that in-flight fire statistics did not justify such redundancy and that the over-protection would impose a payload sacrifice and be expensive. In this connection, neither Part 23 nor Appendix A of Part 135 requires an extinguisher system. Upon reconsideration of the proposal, and consistent with the recognized need for improved standards for the category of airplanes to be certificated under the SFAR, the FAA has concluded that a system to provide a "one-shot" discharge to each designated fire zone is the minimum safety standard for the new category airplanes. Section 11.(b) [now 11.(b)(2)] has been changed accordingly.

12. *Fire extinguishing agents.*

13. *Extinguishing agent containers.*

14. *Fire extinguishing system materials.*

The comments received were directed to fire extinguishing systems in general under section 11 rather than to the specific areas covered in sections 12, 13, and 14. Sections 12, 13, and 14 are adopted as substantively proposed. In the notice, section 13 inadvertently referenced § 25.1189 although by subject matter it is clear that § 25.1199 was intended. Section 13 has been corrected accordingly.

15. *Expiration.* One commenter's inquiry regarding applicability of this section appears to be questioning, in effect, the duration of supplemental and amended type certificates issued under the SFAR and the airworthiness certificates derived from them. These points have been discussed in detail earlier in this preamble in connection with sections 1 and 3. The section is adopted substantively as proposed.

Discussion on proposals concerning Part 135.

FAR § 135.169. No unfavorable comments were received on the proposal to amend § 135.169 and the proposal is adopted without substantive change. However, the general reference to airplane type certificated in compliance with the SFAR has been expanded to refer separately to those certificated under sections 1.(a) and 1.(b). This distinction is necessary for clarity because of the separate references required in § 135.399.

FAR § 135.399. The proposed addition to § 135.399 would require airplanes certificated under the SFAR to comply with the landing limitations that are applicable to large transport category turbine-engine powered airplanes under Part 135 at destination and alternate airports. Two commenters believed it would be confusing to incorporate regulations whose indicated applicability is only to large transport category turbine-engine powered airplanes when the affected airplanes are non-transport category and include those with reciprocating engines. The FAA agrees and the paragraph, as adopted, has been changed to clarify this applicability.

One commenter noted that the proposed § 135.399(b) would require compliance with landing limitations but nothing was proposed to revise § 135.399(a) to implement the takeoff limitations for the new SFAR airplanes. According to the commenter this was a serious omission because takeoff performance limitations are usually more critical in operation. The FAA agrees that takeoff weight limitation requirements are as much applicable to SFAR airplanes as they are to the normal category airplanes already covered by the rule. Section 135.399(a) is amended accordingly. In addition, the landing weight limitation requirements applicable to airplanes certificated in accordance with paragraph 1.(a) of the SFAR (i.e. airplanes meeting Appendix A of Part 135) are transferred from § 135.399(b) as proposed to § 135.399(a). This non-substantive change makes § 135.399(a). This non-substantive change makes § 135.399 internally consistent since landing weight limitations of non-SFAR airplanes meeting Appendix A are already covered in § 135.399(a).

ADOPTION OF THE AMENDMENT

Accordingly, the Federal Aviation Regulations (14 CFR Chapter I) are amended, effective October 17, 1979.

(Secs. 313(a), 601, 603, and 604, Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c))).

NOTE—The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by writing to Raymond E. Ramakis, Safety Regulations Staff (AVS-24), Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591.

Amendment 91-160

Suspension of Amendment 91-157; Minimum Equipment List (MEL)

Adopted: October 26, 1979 **Effective: November 1, 1979**

(Published in 44 FR 62884, November 1, 1979)

SUMMARY: Amendment No. 91-157 was originally issued July 18, 1979, to become effective November 1, 1979. That amendment provides a regulatory mechanism by which general aviation operators may obtain approval to operate, under certain conditions, their multiengine aircraft with certain instruments and equipment inoperable that are not necessary for safe operation. This amendment suspends the effectiveness of Amendment No. 91-157 to enable the FAA to consider more fully certain changes to the rule which a petitioner for rule making contends should be made before Amendment No. 91-157 becomes effective.

FOR FURTHER INFORMATION CONTACT:

Raymond E. Ramakis, Regulatory Project Branch, AVS-24, Safety Regulations Staff Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, Telephone (202) 755-8716.

DISCUSSION

The FAA issued Amendment No. 91-157 on July 18, 1979, to become effective on November 1, 1979. This amendment would have permitted general aviation operators to obtain the use of an MEL.

The National Business Aircraft Association, Inc., (NBAA) submitted a petition requesting delay of the effective date of Amendment No. 91-157 to enable the agency to revise § 91.30 to provide for proper and timely development of adequate MEL's and to avoid confusion among aircraft operators.

Upon further consideration, and in light of the NBAA petition, the FAA recognizes that certain clarifying and necessary changes in Amendment No. 91-157 are necessary and should be made before it becomes effective.

Accordingly, the FAA has determined that the public interest justifies a stay of the effective date of Amendment No. 91-157 to enable the FAA to propose certain clarifying and necessary changes. Since this action is necessary to correct certain deficiencies in Amendment No. 91-157 which could burden and confuse the public if it became effective, I find that notice and public procedure hereon are impracticable and contrary to the public interest and that good cause exists for making this amendment effective on less than 30 days notice.

In consideration of the foregoing, Part 91 of the Federal Aviation Regulations is amended, effective November 1, 1979, by suspending the effective date of Amendment No. 19-157 published in the *Federal Register* July 26, 1979 (44 F.R. 43714).

(Secs 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), and 1423); sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).

NOTE.—The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by Department of Transportation Regulatory Policies and Procedures (44 FR 11034); February 26, 1979.

Amendment 91-161

Compliance Plans and Expanded Definition of "Replacement Airplanes"

Adopted: December 13, 1979 **Effective: December 20, 1979**

(Published in 44 FR 75558, December 20, 1979)

SUMMARY: This amendment (1) requires operators of turbojet airplanes covered by the rule to submit their respective plans for achieving timely and continuing compliance with the applicable noise limits and (2) expands the definition of "replacement airplanes." The operating noise limits rule applies to "U.S. registered civil subsonic turbojet airplanes with maximum weights over 75,000 pounds and having standard airworthiness certificates." The DOT/FAA has repeatedly stated its intent to obtain reasonable adherence to the phased noise reduction program set forth in Part 91, Subpart E. Since the first compliance date is approaching, it is advisable to require the operators to submit compliance plans so that the FAA can make appropriate plans for orderly administration of the rule. The nature and mobility of airplane fleets of the various aircraft operators covered by the rule, make it difficult for the FAA to obtain specific fleet and airplane compliance information in a comprehensive and uniform manner. While the FAA has continuously stated its intent to enforce the prescribed compliance schedule, the effectiveness of that enforcement is improved by requiring that current and updated operator plans for achieving and maintaining compliance are developed and made available to the FAA and the public. This amendment permits replacement of noncomplying airplanes with previously ineligible "Stage 1" or "Stage 2" airplanes that have been reengined, or otherwise modified, and certificated as "Stage 3 airplanes." The original operating noise limits rule assumed that this kind of modification would not be attractive within the compliance period. Accordingly, it permitted replacement only by airplanes shown to comply with Part 36 noise levels prior to the issuance of an original standard airworthiness certificate. Recent developments suggest that that assumption was wrong. If it had been possible to foresee the current reengining proposals that modify existing aircraft to become Stage 3 airplanes, the FAA would have proposed to include those reengined airplanes as replacement airplanes in the original rulemaking. Therefore, those recertificated "Stage 3 airplanes" are being made eligible as "replacement airplanes" under the rule in order to increase the protection provided to the public health and welfare as contemplated under § 611 of the Federal Aviation Act of 1958, as amended.

DATES:

Initial compliance plan due: Ninety days after notice is published in the *Federal Register* that the requirements of new § 91.308 have been approved by the Office of Management and Budget or 90 days after commencing operation of airplanes covered by § 91.308, whichever is later.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard Tedrick, Program Management Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-9027.

SUPPLEMENTARY INFORMATION:

REGULATORY HISTORY

On December 17, 1976, the FAA adopted Subpart E of Part 91 of the Federal Aviation Regulations (41 FR 56046; December 23, 1976), which prescribes operating noise limits for certain "U.S. registered, civil subsonic turbojet airplanes with maximum weights over 75,000 pounds and having standard airworthiness certificates." Those requirements prohibit the operation in the United States of affected airplanes after specified dates unless they have been shown to comply with the noise levels ("Stage 2") prescribed under Part 36 in accordance with the provisions of Subpart E. For airplanes operated under operating certificates issued under Parts 121 and 135, Subpart E prescribes a phased compliance schedule requiring specified portions of an operator's fleet to achieve and maintain compliance by 1981 and 1983, with full and continuing compliance by all affected airplanes by 1985. Thus, on and after January 1, 1985, no person may operate in the United States any airplane covered by Subpart E, including those operated under Parts 91, 121, 123, and 135, unless compliance has been shown. Compliance may be achieved by the acoustical modification, or "retrofit," of noncomplying airplanes or through their replacement with complying airplanes.

On April 26, 1979, the FAA published Notice 79-9 (44 FR 24778), which proposed amendments to the aircraft operating noise limits rule (1) to require operators of turbojet airplanes covered by the rule to submit their respective plans for achieving timely and continuing compliance with the applicable noise limits and (2) to expand the definition of "replacement airplanes" under the rule. The notice proposed to permit replacement of noncomplying airplanes with currently ineligible "Stage 1" or "State 2 airplanes" that have been reengined, or otherwise modified, and certificated under Part 36 as "Stage 3 airplanes." The current rule permits replacement only by airplanes shown to comply with Part 36 noise levels prior to the issuance of an original standard airworthiness certificate. The notice indicated that those recertificated "Stage 3 airplanes" should be eligible as "replacement airplanes" under the rule.

On April 26, 1979, the FAA also published for public comment a petition of the Air Transport Association of America (ATA) dated March 23, 1979, on behalf of its member air carriers, to eliminate the initial, January 1, 1981, phased compliance date under § 91.305 of Subpart E and to substitute for it a requirement that each operator submit a plan to the FAA by January 1, 1980, showing how it intends to comply with the 1983 and 1985 compliance dates (44 FR 24782; April 26, 1979). Docket No. 18924 was assigned to the ATA petition. This amendment partially grants the ATA petition with respect to the submission of compliance plans by each operator of aircraft covered by the rule. The FAA will also respond separately to the ATA petition under FAR Part 11.

THE NEED FOR THIS AMENDMENT

Since its adoption in 1976, public, Congressional and other government interest in the achievement of the full benefits of the rule has increased significantly. The FAA has received numerous suggestions from the public and members of Congress that, in light of the rapidly approaching compliance dates of a rule designed to provide vital relief to millions of Americans living near airports, the FAA should move promptly to improve its compliance monitoring ability and to require the submission of compliance plans by airplane operators at the earliest practicable date. Of particular interest is the progress being made by air carriers and commerical operators who face the first phased compliance date of January 1, 1981.

At the time it adopted the rule, the FAA had data and status reports concerning Part 36 compliance of airplanes in the various operator fleets upon which it based its analysis of the effects of the rule. However, since that time, the FAA has not had sufficient information on which to accurately assess the current or planned compliance status of the individual airplanes within the respective operator fleets. The complexities of the composition of those fleets, with numerous types and models of aircraft, their mobility, their requirements for repair and maintenance, and the generally changing nature and composition of the fleets, have made it virtually impossible for the FAA to obtain reliable, uniform, and continuously current information on fleet composition showing its current and planned future compliance status.

The FAA intends to ensure that compliance with the provisions of Subpart E is not compromised by planning failures that could have been avoided. If the FAA is unaware of problems or potential problems that might delay full compliance, it is unable to respond or take corrective action to alleviate those matters. Every effort will be made to ensure that the benefits of the Subpart E operating noise limits are achieved without delay.

Therefore, to avoid possible problems associated with inadequate monitoring of compliance and unreasonable delays in operator planning which may make compliance uncertain or impractical, the FAA should establish a program of required operators' noise compliance plans. The notice and the ATA petition proposed to require the submittal of compliance plans. Since airplane operators covered by the noise compliance rule should already have the necessary information as part of their fleet management programs and the strategies developed to achieve the required compliance, the objectives of the proposal can be achieved with a minimum of cost or other burden on the operators in submitting those plans and data under the reporting requirements prescribed by this amendment. Since any false statement or information submitted under § 91.308 may be punishable by fine or imprisonment under 18 U.S.C. § 1001, reference to those provisions is included in the rule.

If those airplanes engaged in foreign air commerce, which are not required to comply (such as under an approved apportionment plan), are subsequently required to comply with Subpart E of Part 91, the FAA will consider extending the reporting requirement to those airplanes.

In its original investigation of the "replacement airplane" concept, the FAA did not contemplate that the older, noncomplying airplanes types were susceptible to reengining, or other acceptable modifications to achieve noise levels much below the "Stage 2" noise limits. At that time, the newest technology represented by turbojet engines with bypass ratios greater than two had no successful application to these older airplanes for which airworthiness certificates had been issued in the past. Accordingly, the rule permits replacement only by the newest airplanes, that is, airplanes shown to comply with Part 36 ("Stage 2" or "Stage 3") noise levels prior to the issuance of an original standard airworthiness certificate. However, current type design modification programs, involving the reengining of certain noncomplying airplanes with high bypass ratio engines to achieve significant noise reductions and improve performance, appear promising enough that several airplane operators have expressed the commitment or interest in using DC-8 airframes reengined with the newest technology engines. There is also a program underway at Boeing to reengine the B-707 with high bypass ratio engines and bring the aircraft into Stage 3 compliance.

To provide an additional option to operators for meeting the noise requirements of Subpart E of Part 91 and to encourage the introduction of more aircraft that have shown compliance with the more stringent noise requirements for "Stage 3 airplanes," the definition of "replacement airplanes" under the rule should be expanded. The change would encourage the use of the new technology engines on certain airframes of Stage 1 airplanes with relatively low flight time, such as Boeing 707 and DC-8 airplanes delivered during the last decade. The newer engine applications would also have the benefits of increased fuel efficiency and reduced engine emissions. To the extent that such applications will be made to existing low flight time airframes of Stage 1 airplanes, the public and the economy would benefit from the efficiencies that result from extending the service life of those airframes.

DISCUSSION OF COMMENTS AND THE RULE

The FAA received eleven comments in response to Notice No. 79-9 from members of the general public, aviation industry, and organizations representing consumer groups, pilots, and flight attendants. Most comments supported both proposals in whole or part, for the reasons stated in the notice. These comments are discussed as follows:

The Airport Operators Council International supports the rule in its entirety and urges its final adoption at the earliest possible date. The Port Authority of New York and New Jersey fully agrees the FAA should actively monitor compliance with the fleet noise rules and should expand the definition of 'replacement aircraft' to include reengined aircraft in recognition of technological developments that enable aircraft to be modified to meet Stage 3 noise requirements.

The Citizens Aviation Policy Association stated that it supports the amendment proposed by the FAA requiring regular progress reports from U.S. airlines on their noise reduction schedules. Those reports, according to the commenter, will help the FAA monitor progress in airline compliance with noise requirements. The comment also suggested that the compliance plans should be publicized so the public can know which airlines are cooperating.

The Town Village Aircraft Safety and Noise Abatement Committee supports the expansion of the term "replacement airplanes," since the result would be a quieter airplane. The commenter opposes the current exclusion in the rule for airlines that operate in foreign commerce because it negates the whole purpose of the FAA's noise abatement program and "short change the airport neighbors by not allowing them to get full benefits of noise abatement they have been waiting over twenty years to come about." The foreign commerce exception in the applicability of the rule was adopted in the original rule in 1976 and no change was proposed by Notice No. 79-9. The purpose of the exception is to permit the international implications of operating noise limits to be considered, and, hopefully, resolve by the appropriate international body, the International Civil Aviation Organization. In adopting the rule, the FAA also announced its intention to subsequently expand the scope of the rule to cover airplanes operated in foreign commerce in the United States, if an appropriate international compliance rule were not developed by 1980. The commenter's concern would be resolved in such separate rulemaking proceedings proposing to apply operating noise limits to airplanes operated in foreign commerce.

An individual commenter opposed the proposed rule because, according to the commenter, it would increase the red tape at a time when government is supposed to be cutting back on red tape. The commenter also stated the proposed action (requiring airlines to submit reports) would eventually lead to higher airline ticket prices because the airlines will have to hire additional people. The FAA does not agree. Those airlines should already have compliance plans that involve essential current fleet management and management decisions currently needed to begin compliance. The FAA is merely requiring the airlines to format and submit compliance plan information that they should already possess and, as stated in the ATA petition, are prepared to submit.

The Air Transport Association (ATA) submitted extensive comments. It supports the intent of the proposals to permit as "replacement airplanes" those reengined airplanes which meet Stage 3 requirements. Their comments contended, however, that while the rule permits replacement planes shown to comply with Part 36 prior to the issuance of an original standard airworthiness certificate may use tradeoff provisions, a reengined or modified aircraft should not be precluded from using tradeoffs in showing compliance with Stage 3 noise requirements unless it qualifies under § 91.301(c)(3). Although a broad reading of the proposal might suggest that result, that limitation was not intended. The restriction on the use of tradeoffs, as in the original rule, applies only to showing compliance with Stage 2 noise levels not to be subsequently adopted Stage 3 noise levels, which are lower. Nevertheless, Boeing and CAMMACORP have predicted that the reengined B-707 and DC-8, respectively, will meet the Stage 3 noise levels without the use of tradeoffs. Based on the prediction methods developed and proven over the past decade of turbojet noise certification, the predicted noise level data provided by Boeing and CAMMACORP appear to be accurate and attainable. However, this amendment would not disallow the use of tradeoffs, if necessary, for noise certification to Stage 3 noise levels by these reengined airplanes.

The ATA also commented that the FAA proposed compliance plans were unnecessarily detailed, impractical to accomplish, and unduly burdensome on the operators. The commenter felt that the plan would require detailed data on individual operator fleet planning which is proprietary in nature and should not be divulged to the public or to competitors. The FAA disagrees. The data on each airplane in each operator's fleet is necessary to ensure that all noncomplying airplanes are timely brought into and remain in compliance, generally without the use of tradeoffs and with the full application of existing acoustical technology. As stated in Notice No. 79-9, compliance plans are needed to avoid potential problems associated with unreasonable delays in operator planning and implementation. Operators have had ample time to develop plans since January 24, 1977, the effective date of Subpart E. Those plans should include the timing of replacing airplanes or ordering and installing an adequate number of SAM treatment kits and quiet nacelles to achieve compliance for the required number of airplanes in each operator's fleet. The public interest in the environmental benefits achievable under the rule outweigh the nominal reporting burdens required to ensure the benefits are achieved.

The ATA suggested a simplified compliance plan format which would provide the number of airplanes by type, model, compliance status (Part 36 or Part 91, Subpart E), and operational status (in operation, retired, replaced, engaged in foreign air commerce, or being operated under an approved replacement plan). The modified plan would provide overall fleet compliance for each of the two fleets in each operator's inventory covered by the rule—one fleet including each four-engine, narrow-body DC-8 and B-707 and the other fleet including each other airplane, such as B-747, DC-10, L-1011, A-300, B-727, B-111, and DC-9. The FAA concludes that such a simplified overall fleet plan would not satisfy the significant public and regulatory interests in accurately assessing the current or planned compliance status of the individual airplanes within the respective operator fleets.

One purpose of the operating noise limits rule is to achieve noise reduction for each airplane covered by the rule through the full application of existing acoustical technology appropriate to the airplane type. While the phased schedule deals with specified portions of an operator's fleet to provide the operator reasonable latitude in developing the means and specific timing for achieving compliance, the compliance planning and implementation necessarily focus on the individual airplanes. The FAA has reviewed the burdens of the proposed rule to ensure that they are minimized to the fullest extent possible consistent with its responsibility to be adequately informed on the status of compliance with the rule. The FAA has no desire to limit the timely achievement of compliance to some rigid, preconceived plan for each airplane in each operator's fleet. Within the limits of the rule, the operators develop their own plans. However, specific plans for each airplane must be developed to eventually achieve full compliance. This amendment simply requires that those plans be provided the FAA to demonstrate the operator's compliance decisions and to permit the FAA to fulfill its compliance oversight responsibilities. The FAA recoginzes the potential need to modify the plans for various valid reasons and this amendment permits those modifications in the form of revised plans. The operator already plans the purchase, sale, service, repair, maintenance, overhaul, retirement, etc. of individual airplanes and, thus, already has considerable fleet management information that is airplane specific. In light of the purposes of this amendment, it is not unreasonable to apply it to individual airplanes covered individually by the noise limits rule and to permit necessary revision of the plans by submitting the revised plan to the FAA.

The ATA contended that by differentiating between compliance with Part 36 and compliance with Subpart E of Part 91, the proposed regulation appear to be redundant. On the other hand, the ATA in its suggested simplified plan used the distinction in several items requesting information on "number by type and model." Thus, it appears that the distinction, based on the use versus nonuse of the tradeoff provisions in meeting the Stage 2 noise level limits, is clear and understood. In adopting Subpart E in 1976, the FAA decided that the operating noise limits rule would generally require airplanes to meet, without the use of tradeoffs, the ("Stage 2") noise level of Part 36. That decision was based on the need to ensure the maximum noise reduction by requiring the installation of proven technology (quiet nacelles and SAM kits) developed with the expenditure of $16 million of Federal research and development funds by FAA alone. Thus, the acoustical hardware required to bring a noncomplying JT8D powered airplane into compliance with Subpart E is compatible with the acoustical hardware installed on airplanes produced after December 1, 1973, under the modified type design, as required by Amendment 36-2 (38 FR 29569; October 26, 1973). In addition, the fleet operators should benefit through standardization of acoustical hardware since the majority of nacelles and engines in service and in reserve will have complete kits. This certificated technology is appropriately identified in the "Table of Acoustical Technology/Strategy Codes" presented in § 91.308(c)(5) of the rule.

The ATA also objected to airplane-specific compliance plans claiming that such detailed data reflecting each airplane's status and planned compliance strategy are proprietary in nature and subject to protection from public disclosure. The FAA notes that much of the required information is already in the public domain in various forms including corporate, industry, and government documents. While some of that information might be of benefit to competitors, operators frequently announce publicly for their own reasons their plans to buy, sell, retire, or replace airplanes. Some operators have announced their reengining programs for their DC-8 airplanes which they plan to keep in their fleets beyond January 1, 1985. Accordingly, the FAA finds no compelling argument for claiming that all the information required for compliance plans or their form should not be adopted because it might benefit competitors or it is proprietary and should not be required to be submitted. However, if an operator required to submit compliance plans believes that certain information contained in a plan is proprietary in nature and includes with the plan a claim for protection against public disclosure in accordance with Section 1104 of the Act, the FAA will consider that claim on a case-by-case basis.

As stated in the comments submitted by the association, Subpart E of Part 91 recognizes that an operator has two possible fleets: one fleet including every type of subsonic four-engine no/low bypass ratio turbojet airplane over 75,000 pounds maximum gross weight; and one fleet including every other type of subsonic turbojet airplanes over 75,000 pounds. In order to reduce the reporting burden, and to permit the FAA to more easily compute the percentages of complying and noncomplying airplanes in each fleet of an operator, as adopted section 91.308(c)(3) requires the operator to submit the total number of airplanes in each fleet. By so doing, it will not be necessary to require any operator to report airplane specific information on airplanes in the fleets but for which no additional compliance strategy is required by Subpart E. For example, airplanes such as the A-300, A-310, B-757, B-767, DC-10, L-1011, or any other newly certificated type of Stage 3 airplane which may be introduced into the U.S. civil fleet prior to January 1, 1985.

With respect to the proposed "Table of Acoustical Technology/Strategy Code," the association commented that a code should be added for "certain" B-727-200 airplanes which could meet the Stage 2 noise level limits without the use of tradeoffs solely by having the double wall fan duct treatment installed, (that is, less the quiet nacelles). The FAA disagrees. Section 1 (entitled "Certificate Limitations") of the B-727-100 Airplane Flight Manual clearly states "To comply with FAR Part 36, Appendix C, BG-19/BG-30 acoustical treatment and quiet nacelles must be installed on all engines for landing with 40 degree flaps at weight greater than 100,000 pounds." Paragraph 36.9(b) of Appendix C of FAR Part 36 specifies that the approach configuration that is most critical from a noise standpoint must be used for noise certification. That configuration, for the B-727-200, is the 40 degree flap setting. Therefore, if the suggested change were made, the code would not distinguish between certain B-727-100 and B-727-200 airplanes which require different acoustical treatment under the rule. Such a result would be counter-productive to achieving required noise level reduction. Furthermore, Advisory Circular 36-1B, Certificated Airplane Noise Levels, dated December 5, 1977, lists the various certificated versions of the B-727-200 powered by the JT8D, -9, -15, -17, and -17R engines. In all cases, the engine model number is followed by the letters QN indicating the installation of full acoustical technology (quiet nacelles *and* double wall fan duct treatment). Despite this full application of acoustical technology, the Advisory Circular listing shows that most of the B-727-200 airplanes required the use of tradeoffs to meet the Stage 2 noise levels. Thus, the "Table of Acoustical Technology/Strategy Codes" in this amendment shows a code for most B-727-200 airplanes equipped with quiet nacelles plus double wall fan duct treatment. However, certain B-727-200 airplanes may have been voluntarily brought into compliance with Part 36 prior to January 1, 1977. Many of these airplanes may have only the double wall fan duct treatment installed and require both maximum use of tradeoffs and reduced operating weights to meet the Stage 2 noise requirements. Tradeoffs are not permitted for showing compliance after January 1, 1977. Section 21.41 states that each type certificate includes the operating limitations, thus most type certificate holders are reluctant to amend the type certificate and instead accept reduced operating capability to use the for less costly acoustical hardware. The FAA strongly encourages those operators to voluntarily install quiet nacelles on these airplanes and thereby assure standardization of installed acoustical hardware on B-727-200 airplanes and to provide maximum noise reduction to near airport neighbors. For those airplanes which do not have the quiet nacelles installed, this amendment uses Code "C" to the Table for identifying *only* those specific B-727-200 airplanes for which compliance was shown before January 1, 1977, by installation of the double wall fan duct treatment (without quiet nacelles) and which have an amended type certificate specifying the appropriately reduced maximum operating weights.

The ATA also correctly noted that the proposed Table lacked a code for identifying reengined B-707 and DC-8 airplanes. Accordingly, this amendment provides appropriate codes for these airplanes which will be brought into compliance with Stage 3 noise levels by the installation of high by-pass ratio turbojet engines equipped with quiet nacelles under an appropriately changed, or new, type certificate. The association suggested that a code entry should be provided for DC-8 and B-707 airplanes which have been retired from U.S. domestic service without reengining or replacment since January 24, 1977, the effective date of Subpart E of Part 91. The FAA agrees. The definition of the RET code in this amendment has been clarified and expanded to read: "For DC-8 and B-707 airplanes which were retired from service in the United States without replacement between January 24, 1977, and January 1, 1985." The FAA feels that the greatest contribution an operator can make to aircraft noise reduction is the early retirement of the older, noisier four-engine turbojet airplanes. The FAA is gratified that reengining with high by-pass ratio engines is an option being followed by several operators in meeting the Part 91, Subpart E requirements. However, the FAA may not approve, without compelling justification, any replacement plan which delays the retirement of a large portion of an operator's DC-8 or B-707 fleet until 1983 or 1984. With respect to bringing B-707's into compliance, the FAA is concerned about the evident lack of commitment by any operator to reengine or retrofit any portion of that fleet. This lack of interest in utilizing acoustical technology developed and proven with Federal funds necessarily forces the FAA to carefully analyze retirement plans covering B-707 airplanes. This amendment also adds to the Table a Code "I" for the BAC-111-400 which is used as a business jet in the United States. The British Aircraft Corporation is currently developing a hushkit for this airplane and the technology can be added to the Table by a minor amendment when the equipment is certificated. Likewise, the Table will be expanded for additional technology that may be developed and certificated.

The ATA commented that the proposed requirements concerning spare shipsets of acoustical components for engines and nacelles were unnecessary for FAA purposes. The FAA disagrees. However, § 91.308(c)(4)(xiii) has been revised and clarified to require each operator to report the number of spare shipsets of acoustical components available on demand for continuous compliance of these airplanes. Once a noncomplying airplane is brought into compliance, it should be maintained in continuous compliance. Thus, this amendment requires each operator to certify the plan, any change in plan, and the status or status change of each airplane in the operator's fleet. Replacement engines and nacelles must be equipped with full acoustical components so that complying airplanes are maintained in full compliance and a reasonable number of spare shipsets of acoustical hardware is necessary to ensure continued compliance.

The ATA contended that it was impractical to plan when a specific airplane would be brought into compliance, retired, or replaced. The FAA disagrees. While the notice mentioned "the scheduled date," the FAA did not intend to require the operator to specify the precise day on which each airplane would be brought into compliance. However, based on the vast experience gained by Part 121 and 135 operators in managing their continuous airworthiness inspection and maintenance programs, it appears that specifying the month and year in which each noncomplying airplane is scheduled to be brought into compliance is not impractical or unduly burdensome. Thus, the amendment requires "the month and year" to be identified in the compliance plan as to when an action will be taken on each airplane. As previously discussed, if a change in the plan or its implementation is necessary, it may be reflected in a revised plan. The Table includes the codes for identifying certificated acoustical technology applied to specific airplane types and models. In order to identify for compliance status and planning purposes other strategies or methods that the operator has used, or contemplates using, in achieving compliance with Part 36 noise limits, the amendment includes a Code "OTH" which may be used with an addendum to the plan explaining in detail that "other" strategy or method for achieving compliance. Note that in reporting the status of compliance for an airplane using Code "OTH" the addendum should include reference to the type certification data and date under which compliance was shown.

The ATA commented that only two reengining options were being covered with respect to certain series of the DC-8 and B-707 airplane types. Section 91.305(c) of this amendment recognizes these two specific reengining options as replacement airplanes. However, while not proven to exist, the FAA could certificate other design modifications under Part 36 to achieve the same Stage 3 noise levels. All other types of turbojet powered airplanes currently being produced in the United States are already required to meet the Stage 2 or Stage 3 noise level limits of FAR Part 36, as required for the issuance of a standard airworthiness certificate.

The ATA suggested that updates of compliance plans should be required no more frequently than biannually. The FAA disagrees. In light of the significant public, Congressional, and other government interest and the need to monitor compliance status and planning over the next few years, more frequent reports are necessary. However, the FAA has reviewed the proposal in an effort to limit the number of required submissions and to reduce the burden on the Part 121 and 135 operators. The FAA has decided not to adopt the proposed requirement for submitting a compliance plan six months before each phased compliance date since, when the compliance status of the prescribed percent of the operator's fleet changes, a revised plan must be submitted and, thus, the six months plan is not needed. Section 91.308(b)(2) requires the submittal of a revised plan thirty days after any change in the operator's fleet or compliance planning decisions that has a separate or cumulative effect on 10 percent or more of the airplanes in either class of airplane types covered by section 91.305(b). This is a slight relaxation from the proposed "5 percent" change as the basis for submitting a revised plan. In addition, the proposed requirement solely for Part 91 and 123 operators to submit an updated plan annually on the anniversary of the date for submitting the original compliance plan is not being adopted, because in the absence of interim compliance dates there is less need for progress reports on compliance status and planning. However, section 91.308(b)(3), as adopted, requires the submission of compliance plans thirty days after each compliance date and annually thereafter through 1985. This is a significant relaxation from the proposed requirement to submit a compliance plan on an annual basis to report continuous compliance. Notwithstanding the 1985 cutoff date for submitting compliance plans, the FAA will thereafter continue to monitor the fleet status and require continued compliance with Subpart E.

The schedule for submissions under § 91.308(b) will become effective on the date a notice is published in the *Federal Register* that the requirements of § 91.308 have been approved by the Office of Management and Budget in accordance with the Federal Reports Act of 1942.

EFFECTIVE AND COMPLIANCE DATES

After considering the objectives and effects of this amendment, the FAA concludes that it should be made effective upon publication in the *Federal Register*. The amendment of § 91.305 expands the class of airplanes which may be "replacement airplanes" under the regulation. Thus, it is a substantive rule that relieves a restriction and may be made effective in less than 30 days after its publication. The amendment of § 91.301 is editorial

in nature and the amendment adding a new § 91.308, to require submission of operator compliance plans 90 days after a subsequent notice is published, provides a compliance date which exceeds the required 30 day notice of regulatory requirements. Accordingly, I find that good cause exists for making this amendment to Subpart E of Part 91 effective upon its publication in the *Federal Register*.

ADOPTION OF AMENDMENT

Accordingly, Subpart E of Part 91 of the Code of Federal Regulations (14 CFR Part 91) is amended, effective December 20, 1979.

Sections 307, 313(a), 601, 603, 604, and 611, Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a), 1421, 1423, 1424, and 1431); Section 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)); Executive Order 11514, March 5, 1970; and 14 CFR 11.49.)

Note: The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policy and Procedures (44 FR 11034; February 26, 1979). A copy of the regulatory evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified above under the caption "FOR FURTHER INFORMATION CONTACT:"

Amendment 91-161A

Compliance Plans and Expanded Definition of "Replacement Airplanes"

Notice of Compliance Dates

Adopted: January 25, 1980 **Effective: January 31, 1980**

(Published in 45 FR 6923, January 31, 1980)

SUMMARY: On December 20, 1979, the FAA published an amendment to its aircraft operating noise limits rule to require operators of turbojet airplanes covered by the rule to submit their respective plans for achieving timely and continuing compliance with the applicable noise limits (Amdt. 91-161: 44 FR 75558). The amendment established dates on which compliance plans and updates must be submitted. It called for the initial compliance plan to be submitted 90 days after notice is published in the FEDERAL REGISTER that the reporting requirements of new § 91.308 have been approved by the Office of Management and Budget (OMB). On December 31, 1979, OMB approved those provisions. Accordingly, this document announces that approval and the regulatory action contemplated by Amendment 91-161 to begin the running of the 90-day period before the initial compliance plans are due. In accordance with the provisions of § 91.308(b), initial compliance plans must be submitted on or before May 1, 1980, based on operator plans and airplane compliance status as of April 1, 1980 (30 days before the date for submission of the plan).

ADDRESS: Submit compliance plans to:

Director, Office of Environment and Energy (AEE-1), Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard N. Tedrick, Program Management Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 755-9027.

SUPPLEMENTARY INFORMATION:

This amendment of § 91.308 is editorial in nature to provide the date—certain in the rule that is prescribed by the text of the bracketed material and is based on the proposal contained in Notice No. 79-9 (44 FR 24778; April 26, 1979). It also corrects two minor editorial errors in the text. Accordingly, I find that good cause exists for making this amendment effective upon its publication in the FEDERAL REGISTER.

ADOPTION OF THE AMENDMENT

Accordingly, § 91.308 of Part 91 of the Federal Aviation Regulations (14 CFR Part 91.308) is amended, effective January 31, 1980.

(Secs. 307, 313(a), 601, 603, 604, and 611, Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a), 1421, 1423, 1424, and 1431); Sec. 6(c), Department of Transportation Act (49 U.S.C.§ 1655(c)); Executive Order 11514, March 5, 1970.

NOTE: The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified above under the caption "FOR FUTHER INFORMATION CONTACT."

Amendment 91-162

Airworthiness Review Program—Amendment No. 8: Cabin Safety and Flight Attendant Amendments

Adopted: January 29, 1980 **Effective: March 6, 1980**

(Published in 45 FR 7750, February 4, 1980)

SUMMARY: The purpose of these amendments to the Federal Aviation Regulations is to update and improve the airworthiness standards applicable to cabin safety and to those affecting flight attendants. These amendments are part of the Airworthiness Review Program.

FOR FURTHER INFORMATION CONTACT:

Everett W. Pittman, Safety Regulations Staff, (AVS-22) Federal Aviation Administration, 800 Independence Ave., S.W., Washington, D.C. 20591, telephone (202) 755-8714

SUPPLEMENTARY INFORMATION: These amendments concern cabin and flight attendant safety and are part of the Airworthiness Review Program. They are based on two Notices of Proposed Rule Making—Notice 75-10 published in the Federal Register on March 7, 1975 (40 FR 10802), and Notice 75-31 published in the Federal Register on July 11, 1975 (40 FR 29410). Because of the Federal Aviation Administration's serious concern for cabin and flight attendant safety, these proposals are being handled separately in this amendment. This action completes disposition of the proposals contained in Notice 75-10; the remainder of the proposals contained in Notice 75-31 will be treated in a subsequent rulemaking action.

The following amendments have previously been issued as part of this Airworthiness Review Program:

Title	*FR citation*
Form Number and Clarifying Revisions....	(40 FR 2576; Jan. 14, 1975).
Rotorcraft Anticollision Light Standards...	(41 FR 5290; Feb. 5, 1976).
Miscellaneous Amendments.............	(41 FR 55454; Dec. 20, 1976).
Powerplant Amendments.................	(42 FR 15034; March 17, 1977).
Equipment and Systems Amendments.....	(42 FR 36960; July 18, 1977).
Flight Amendments.....................	(43 FR 2302; Jan. 16, 1978).
Airframe Amendments..................	(43 FR 50578; Oct. 30, 1978).

Interested persons have been afforded the opportunity to participate in the making of these amendments and due consideration has been given to all matters presented.

BACKGROUND

In late 1978, the Administrator ordered a review of all cabin safety programs and projects within the various FAA offices. While the agency's several programs all pursued the same goal of improving safety, there was lacking a cohesiveness of effort, a central focal point. After assessing the status of these projects, the Administrator in early 1979, directed the agency to integrate all aspects of cabin safety into one program. The agency's new approach is to comprehensively deal with the problems by relating all aspects of cabin safety into a "total" cabin safety program with one program manager, the Director of Aviation Safety.

The integrated cabin safety program consists of a number of key activities which individually exist at various stages of completion. This amendment, as one element of that program, converts all but one of the proposals concerning cabin safety contained in the outstanding notices of proposed rulemaking, into final rules. The proposal concerning lower deck service compartments, § 25.819 (Proposal 8-40) has been deferred to later rulemaking action.

Other portions of the overall program, which are not dealt with in this action, concern such areas as the smoke, toxicity, and flammability characteristics of cabin interior materials and fuel explosion suppressive devices. These matters are currently the subjects of intensive research and development work which will form the basis of future regulatory standards.

The FAA's concern for improving the cabin safety environment for the traveling public, and for the flight crews and flight attendants serving that public, was underscored by the numerous comments received in response to Notices 75-10 and 75-31. While those notices contained many proposals for rule changes in other important airworthiness certification areas, the widespread concern over cabin safety has prompted the FAA to treat the subject by separate amendment at this time.

The proposals which form the basis for this amendment cover aircraft certification requirements for seats to be occupied by flight crewmembers, flight attendants, and forward observers. Relative to the seats, the proposals also speaks to seat belts and shoulder harnesses. Other items of cabin safety include stowage and service compartments, floor surfaces, and waste receptacles. In addition to the proposals related to type certification requirements, this amendment also completes action on proposals for operating rule changes that will impose some similar requirements on currently operating aircraft.

The FAA has determined that this document involves a proposed regulation which is non-significant under Executive Order 12044 as implemented by DOT Regulatory Policies and Procedures [44 FR 11034; February 26, 1979]. The regulatory evaluation prepared for the regulations is contained in the regulatory docket. A copy of the regulatory evaluation may be obtained by contacting the person identified above under the caption "FOR FURTHER INFORMATION CONTACT. . ."

DISCUSSION OF COMMENTS

The following discussion is keyed to like-numbered proposals contained in Notice 75-31. Proposals from Notice 75-10 are identified and discussed with the related Notice 75-31 proposals.

Proposals 8-36 and 2-60. In addition to the proposed revision of § 25.785 in Notice 75-31 dealing with the design and location of seats, berths, safety belts, and harnesses, a proposed Airworthiness Directive (AD), Docket No. 14912, was issued on August 7, 1975 (40 FR 34139) proposing the removal of side-facing flight attendant seats and establishing criteria for the design, location, and removal of other flight attendant seats.

Both Notice 75-31 and the proposed AD contained similar proposals for flight attendant seats, and comments were received on both proposals. An AD was subsequently issued on February 23, 1976 (41 FR 8766) to require the removal of each side-facing flight attendant seat. The AD did not require corrective action on the other items contained in the proposed AD, since it was intended that the design or removal of other flight attendant seats would be considered in connection with final rulemaking action under Proposals 8-36 and 8-117 in Notice 75-31. Comments received on the proposed AD have been considered under related proposals in Notice 75-31. The energy absorbing rest requirement of proposed § 25.785(h)(2)(i) is intended to answer numerous comments received in the AD docket relating to allegedly hazardous characteristics of certain galley mounted flight attendant jumpseats now used in air carrier service. Since § 25.785(h)(2)(i) is specifically made applicable to air carrier operations in proposed § 121.311(f), present flight attendant jumpseats not designed to provide necessary arm, shoulder, head and spine support will be prohibited from use during air carrier operations upon the effective date of this amendment.

A commenter suggested that proposed § 25.785(g) only apply to required flight crew station seats and not to other flight deck seats such as rest seats or observer seats. The FAA does not agree. Nonrequired flight station personnel occupy seats that are very close to those of required personnel and, if these nonrequired flight station personnel are not properly restrained, their unrestrained movements during an emergency situation could interfere with operations by the flight crew. Therefore, the requirement of proposed § 25.785(g) is applicable to all seats on the flight deck.

Several commenters questioned whether the words "means to secure" in proposed §§ 25.785(g) and (h) were intended to require a specific device or whether an operational procedure could be used that would require that the seat belt and shoulder harness be secured when not in use. Another commenter questioned whether the fastening of the harness around the seat when not occupied would meet the intent of the rule. The intent of the proposal for §§ 25.785(g) and (h) is to provide a means or procedure for ensuring that the restraint system, when not in use, will not interfere with normal operation of the airplane or interfere with rapid egress of personnel in an emergency situation. The fastening of the restraint system around the seat would be acceptable if it meets this intent. The work "combined" which appears between the words "be" and "means" in the second sentence of proposed § 25.785(g) has been deleted as redundant. Several commenters questioned whether the term "when not in use" in proposed §§ 25.785(g) and (h) related to not in use on a particular flight or not in use due to the seat having been momentarily vacated. However, the wording makes clear that the rule would apply in both instances.

Numerous comments were received on proposed § 25.785(h) to require that flight attendant seats be located near approved floor level exits and be equipped with a combined seat belt and shoulder harness.

Several commenters suggested that applicability of the proposed paragraph be restricted to seats provided for those attendants required by the operating rules, since excess flight attendants usually occupy passenger seats and the redesign of passenger seats to accept approved shoulder harnesses would be prohibitive in cost. The FAA maintains that all flight attendants required by § 121.391 should have seats that meet the requirements of § 25.785(h). The phrase "required by § 121.391" has been deleted from § 121.311(f) and a new § 121.311(f)(3) has been added to clarify that the requirements of § 25.785(h) are not applicable to passenger seats occupied by flight attendants not required by § 121.391.

Two commenters suggested that shoulder harnesses not be required on rearward facing flight attendant seats, stating that a seat belt alone would offer secure and safe restraint. The FAA does not agree. Lateral restraint is required for rearward facing as well as for forward facing seats. A shoulder harness provides the degree of lateral restraint necessary to warrant its use at all flight attendant seats.

A commenter questioned whether mirrors could be used to meet the intent of the proposed § 25.785(h)(1), which would require that flight attendant seats be located to provide a view of the cabin area. The intent of the proposal is to require a direct view, and mirrors or other such devices are not considered acceptable because of their limitations. The proposed § 25.785(h)(1) is therefore revised to specify "direct view" and to make nonsubstantive editorial changes.

Two commenters stated that where galley doors are used as emergency exits, the placement of the attendant seats near the floor level exit, as required in proposed § 25.785(h), could preclude compliance with the requirement of proposed § 25.785(h)(1) that the flight attendants be provided a direct view of the cabin area. To cover this situation, a commenter suggested that the § 25.785(h)(1) requirement be conditioned to apply insofar as practicable and without compromising the proximity to required floor level exits. The FAA agrees that the requirement for location of the flight attendant seats near the floor level exits in this case is more important than the requirement that the flight attendant have a direct view of the cabin. Accordingly, the proposal is revised in the manner suggested.

Another commenter stated that access to the communication system when seated is not necessary for all flight attendants, and in particular those in excess of the number required by the operating rules. After further review, the FAA has concluded that the wording of proposed § 25.785(h)(1) referring to access to the communications system when seated may be ambiguous and cause misunderstandings when compared to the newly adopted provisions of §§ 25.1411(a)(2) and 121.319 of this Chapter (Amendment 7; 43 F.R. 50578). Newly adopted § 25.1411(a)(2) describes the requirements for the public address system microphone, whereas the § 121.319 requirement for a crewmember interphone system is also regarded as a communication system. However, there is no mention in Part 25 of the crewmember interphone described in § 121.319. To make the changes necessary to resolve this ambiguity would be beyond the scope of this proposal. Accordingly, the FAA has deleted the last portion of proposed § 25.785(h)(1) referring to access to the communications system when seated. The FAA will propose future rulemaking action to incorporate provisions in §§ 25.785(h)(2)(i) and (h)(2)(ii).

Four commenters objected to proposed §§ 25.785(h)(2)(i) and (h)(2)(ii) to require energy-absorbing rests on only rearward facing seats and suggested that forward facing seats also be required to have such rests. The FAA agrees, and the proposed § 25.785(h)(2) has been revised accordingly. A commenter suggested that the proposed § 25.785(h)(2) is redundant, since current § 25.785(c) already requires a seat with energy absorbing rests. The FAA does not agree. The § 25.785(c) requirement does not specify the energy absorbing rest that would be required by § 25.785(h)(2) for rearward and forward facing flight attendant seats.

Two commenters suggested deletion of the word "arms" if the intent is to require arm rests or side panels, for these would preclude the use of the fold-up seats needed to provide the necessary clearance and access to aisles and exits. The proposed rule is not intended to eliminate the use of fold-up seats. The intended arm support could be provided by a sufficiently large seat back, and this would not preclude the use of fold-up designs. Another commenter suggested that clarification of the work "energy absorbing rest" is necessary and suggested that the term "padding" was less confusing. The FAA believes that the term "energy absorbing rest" as currently employed in present § 25.785(c) is sufficiently clear and unambiguous. Moreover, introducing new terminology at this time would only lead to confusion.

Several comments were received on proposal § 25.785(h)(3), which would require that flight attendant seats be positioned to prevent interference with the use of passageways and exits. The commenters questioned whether the requirement would apply to unoccupied flight attendant seats. The FAA agrees that the proposed requirement should be clarified and it has been revised to indicate that the requirement applies to flight attendant seats when not in use. Revised § 25.785(h)(3) has been redesignated and adopted as § 25.785(h)(2)(ii).

A commenter suggested the addition of a new § 25.785(h)(4) to state requirements for the design and location of supplemental oxygen equipment for use by the flight attendants. Since standards for the location of such equipment are presently under consideration in the Operations Review, that suggestion will be treated as a part of the Operations Review rulemaking.

A commenter suggested deletion of the words "during any operation" from the proposed § 25.785(j), which would require that each seat be located to minimize the probability of its occupant suffering injury by being struck by dislodged items. The commenter stated that the phrase was meaningless, unnecessary, and would be a source of never-ending controversy as to its intent. The FAA agrees, and proposed § 25.785(j) has been revised accordingly.

Several commenters questioned whether the proposed § 25.785(j) was intended to pertain to all passenger and flight attendant seats or merely to flight attendant seats. A commenter suggested that injury from dislodged contents of galleys or storage compartments is common to all seats in the cabin and that the flight attendant seats should not be singled out for action. Consistent with the wording of the previously issued AD dealing with flight attendant seats, the intent of proposed § 25.785(j) in Notice 75-31 was directed to flight attendant seats. Although all occupants of an airplane should be protected from injury from dislodged items, the FAA does not agree that all occupants are vulnerable to flying debris by reason of seat location. The flight attendant seats, being adjacent to exits, are frequently in aisles, passageways, or near galleys, and are therefore more vulnerable to being struck by objects dislodged from closets, galleys, supply racks, or shelves. Service experience shows that flight attendants are struck more often than other cabin occupants and proposed § 25.785(j) is revised to clarify its applicabililty to flight attendant seats.

Another commenter suggested that a strict interpretation of proposed § 25.785(j) would result in an incompatibility with the requirements that cabin attendant seats be near or adjacent to approved floor level exits, especially when such exits are galley service doors. The commenter suggested inclusion of the phrase "insofar as is practicable and without compromising the proximity to approved floor level exits. . . ." The FAA does not agree. The requirement that flight attendant seats be located near approved floor level exits should not be compromised nor should locating such seats near galleys compromise the safety of the seated flight attendant. In this connection, proper galley design and seat location can greatly minimize the probability of the flight attendant being injured by dislodged items.

Finally, one commenter suggested a revision to § 25.785(j), by listing specific items to be considered in minimizing the likelihood of occupants being injured by dislodged items. The same commenter proposed that the description of likelihood of injury be changed from a "probability" to a "possibility". The FAA does not agree. Proposed § 25.785(j) would require that flight attendant seats be located to minimize the "probability" of occupant injury from dislodged items. Substantial design difficulties would be encountered in locating flight attendant seats to minimize harm from any possibility during flight operations. The commenter's proposal would create the unwarranted implication that seat locations be subject to statistical analysis. Nor is the necessary to enumerate all items capable of being dislodged, as the proposed wording would require that all items normally found in galleys, storage compartments, and serving carts must be considered. The same commenter's further suggestion for specifying means for securing all stowage compartments and related loose items is unnecessary since such structural considerations are adequately covered in the wording of § 25.785(j).

Disposition of Proposal 2-60 to amend § 25.785 (Notice 75-10) was deferred at the time of issuing the amendment published at 41 FR 55454 so that it could be considered in connection with Proposal 8-36. No unfavorable comments were received on Proposal 2-60. However, in view of the changes being made to § 25.785 under Proposal 8-36 of Notice 75-31, the changes proposed in 2-60 of Notice 75-10, with the exception of the word changes in paragraph (i) and the addition of a new paragraph (h), are unnecessary and are withdrawn. Proposed paragraph (h) concerning the forward observers' seat is adopted and redesignated as § 25.785(k).

Proposal 8-37. Two commenters objected to the wording "extremely improbable" in the proposed revision to § 25.787(b). One commenter stated that this wording implies a requirement for a reliability analysis, which the commenter indicated was unwarranted. The FAA concurs, and the requirement that an unwanted opening be extremely improbable is withdrawn.

Two commenters suggested that the intent of proposed § 25.787(b) is adequately covered in present § 25.789. However, the intent of the proposed section is to prevent inadvertent opening of the latched doors of stowage compartments by specifically requiring that service wear and deterioration be considered in the design. The § 25.787(b) requirement is therefore different than the § 25.789 requirement which is directed to retention of items of mass subjected to maximum load factors.

After consideration of the comments received and after further review, the FAA has determined that a clarification of the proposal is needed to indicate that the proposal applies only to stowage compartments in passenger and crew cabins. The proposal is revised accordingly.

Proposal 8-39. A commenter objected to the proposal for a new § 25.793 to require slip resistant properties on floor surfaces of all areas likely to become wet, stating that there appears to be no such hazard in general aviation airplanes. The FAA does not agree. Airplanes type certificated under Part 25 may be operated both as air carrier and general aviation type airplanes. Any transport category aircraft may be susceptible to this problem regardless of its type of operation.

A second commenter suggested that the wording of the proposal be revised to require consideration only of those areas "likely to become wet in service." The FAA agrees and the proposal is revised accordingly.

Several commenters questioned the term "slip resistant" as used in the proposal. A commenter stated that a definition of the term should be adopted. The FAA maintains that the term "slip resistant" is generally understood, and that no useful purpose would be served by providing a rigorous definition which might unduly restrict design choice.

Proposals 8-42, 2-18, 2-65, 2-114 and 2-160. Proposal 2-65 to revise § 25.853(c) is similar to Proposals 2-18, 2-114 and 2-160 to revise §§ 23.853(c), 27.853(c), and 29.853(c), respectively. Each of these proposals was set forth in Airworthiness Review Notice No. 2 (Notice 75-10) and their disposition was deferred for consideration with Proposal 8-42 (see Amendment No. 3 (41 FR 55454)). All comments on Proposals 2-18, 2-65, 2-114, and 2-160 are discussed herein.

Commenters pointed out that proposed § 25.853(c) contained "No Smoking" sign provisions which were already set forth in current § 25.791, and suggested that one or the other be revised to avoid confusion. The FAA agrees and § 25.853(c) has been revised to refer to § 25.791 for the requirements for signs that notify passengers when smoking is prohibited. Because of this revision to Proposal 8-42, § 25.853(c) is not identical to §§ 23.853(c), 27.853(c), and 29.853(c); however, substantively identical language exists in § 25.971, referenced in the revised § 25.853(c). If § 25.853(c) were to be identical to §§ 23.853(c), 27.853(c), and 29.853(c), corresponding changes to § 25.971 and § 121.317(a) would be necessary. Such changes would unnecessarily complicate this amendment and would provide no meaningful advantage.

A commenter objected to proposed § 27.853(c)(2) on the grounds that "No Smoking" signs are not justifiable for normal category rotorcraft, which are limited to 6,000 pounds gross weight. It was contended that the passenger capacity of such rotorcraft is relatively small and that even when the crew and passenger compartments are separated, a simple "No Smoking" placard, or oral instructions from the crew, or both, would accomplish the intent of the proposal. With regard to a "No Smoking" placard, the FAA agrees that such a placard would be sufficient if smoking is to be prohibited. However, the FAA believes that when the crew compartment is separated from the passenger compartment, oral communication from crew to passenger may not be possible.

A commenter suggested that the distinction between the term "when illuminated" in proposed § 27.853(c)(2)(i), and the term "when illuminated internally" in proposed § 27.853(c)(2)(ii), should be made more clear. The FAA's intent was to require the lights to be so constructed that the crew can turn them on and off, consistent with similar requirements in current §§ 25.791, 121.317 and 127.115. Accordingly, the term "when illuminated internally" is deleted from §§ 23.853(c)(2)(ii), 27.853(c)(2)(ii) and 29.853(c)(2)(ii).

Several commenters objected to the requirement in proposed § 25.853(d) (Proposal 8-42) that towel, paper, and waste receptacles be fireproof, contending that—(1) Experience and tests have demonstrated that proper design using fire resistant materials provides entirely adequate fire containment; (2) the other requirements in proposed § 25.853(d) ensure fire containment in fire resistant receptacles; and (3) use of fireproof rather than fire resistant materials would result in a considerable weight penalty, particularly on large airplanes. In light of these comments, and after further consideration, the FAA concludes that fire resistant materials would be adequate for these receptacles. Proposed § 25.853(d) is revised accordingly.

Two commenters pointed out that proposed § 25.853(d) could be construed as applying to towel and paper dispensing equipment. The FAA's intent was to cover only those receptacles that are used for the *disposal* of towels, paper, and waste since these are receptacles in which fires have occurred in service. To make this clear, § 25.853(d) is revised by inserting the word "disposal" before the work "receptacle."

A commenter objected to the term "extremely improbable" in proposed § 25.853(d) because it implies a type of reliability analysis which the commenter claimed would not be appropriate to the requirements specified. Another commenter objected to the same term on the ground that it would be impossible to demonstrate. The FAA agrees that "extremely improbable" is not appropriate and the second sentence of § 25.853(d) is revised to read ". . . under all probable conditions of wear, misalignment, and ventilation expected in service. . . ." The word "effects" is deleted as redundant.

One commenter stated that proposed § 25.853(d) would require that the receptacle have a lid and that this may not be practical when a chute leads from a spring-loaded door in the sink counter top into a container below. The FAA believes that a practical design complying with the proposal can be achieved by considering the combination of spring-loaded door, chute, and container as constituting the receptacle.

Two commenters objected to proposed § 25.853(e), stating that it was more restrictive than Airworthiness Directive (AD) 74-08-09, which deals with similar safety issues. In particular, the commenters stated that the AD allowed the use of— (1) "No Smoking" signs as an alternative to "No Smoking in Lavatory" signs; (2) signs "of sufficient size and contrast" as opposed to the proposed "red letters at least one inch high on a white background of at least two inches high"; (3) one ashtray to serve more than one lavatory door if the ashtray could be seen readily from the cabin side of each lavatory served. Concerning the first and third points, the FAA finds, after further consideration, that the less restrictive language in the AD would provide an adequate level of safety. Concerning the second point, the FAA believes it is necessary to require minimum standards for the size and contrast of the placards specified in proposed § 25.853(e). However, after further consideration, the FAA has concluded that these placards would be sufficiently conspicuous if the red letters and white background were one-half inch high and one inch high respectively. Section 25.853(e) is revised accordingly.

A commenter suggested that proposed § 25.853(e) be revised to allow the use of symbols to indicate "No Smoking in Lavatory" instead of letters. The FAA maintains that for lavatory placards, letters rather than symbols must be used to minimize the probability that the placard message would not be understood by the lavatory occupant. In contrast to the situation in the general cabin area, there would not be a person nearby who could explain the symbol if its meaning were not grasped. However, symbols may be included on the placard with the letters to further describe the no smoking condition.

A commenter who supported proposed §§ 25.853(d) and (e) suggested that additional regulations should be developed to provide an active means of fire detection and extinguishing in compartments such as lavatories; however, the commenter did not make any specific recommendations.

Proposal 8-52. No unfavorable comments were received on the proposal to amend § 25.1413(c). Accordingly, the proposal is adopted without substantive change.

Proposal 8-116. Several commenters agreed in principle with the proposed § 91.200 to add a requirement that transport category aircraft be equipped with shoulder harnesses meeting the requirements of § 25.785 at each crewmember seat and flight attendant seat. Two of these commenters disagreed with the proposed one year compliance time, stating that two or three years was a more appropriate compliance time. The FAA finds that the one year proposed is a realistic time for accomplishing these tasks. However, the FAA recognizes that conditions beyond the control of an operator can occur to delay compliance with the rule. This could be the case even though a good faith effort was made by an operator to comply. Because of this, the proposal has been revised to provide, under appropriate circumstances, for a limited extension of the compliance date in accordance with a schedule acceptable to the FAA. Before granting any extension, the FAA will scrutinize each operator's request to determine if the operator made the showing required by § 91.200(b). In addition to demonstrating that circumstances beyond its control make timely compliance impossible, the operator must submit a schedule showing that compliance will be achieved at the earliest practicable date. Any extension granted will be based upon the FAA's judgment as to the earliest date on which compliance is possible.

A commenter stated that some airplanes do not have adequate structure available at some flight attendant and jump seat locations to install a supported shoulder harness, particularly at those seats which are side facing. However, side-facing seats are no longer an issue since Airworthiness Directive 76-05-02 (Docket No. 14912, Amendment No. 39-2534) requires the removal of side-facing flight attendant seats from all transport category airplanes.

A commenter suggested that the proposal be revised to require compliance only when flight attendants are being carried, rather than at all times a flight attendant seat is installed. The commenter pointed out that some airplanes operate under Part 91 when conducting ferry or training flights. The FAA does not agree, since Proposal 8-117 would require that shoulder harnesses be installed for operations conducted under Part 121 and they would therefore already be in the airplane for the operation described by the commenter.

Several commenters on Proposal 8-117 pointed out that certain existing shoulder harness installations at pilot-in-command, second-in-command, and flight engineer stations are designed to less than the present 9_g forward load factor requirement of § 25.785, and that to require a redesign to 9_g would be impractical and prohibitive in cost. Other commenters noted that many flight attendant seats already have FAA-approved shoulder harnesses but not all are "combinded safety belts and shoulder harness unit(s) with a single point release." The commenters stated that these installations have proved satisfactory in service and, since the operators voluntarily installed such FAA-approved shoulder harnesses, it would be unfair to now penalize them by requiring a retrofit restraint system with a single point release. The FAA finds that the comments submitted on Proposal 8-117 are equally appropriate for Proposal 8-116 and agrees with the commenters' recommendations. Proposed § 91.200 has been appropriately revised to allow the use of previously installed restraint systems at crewmember stations, provided the crewmember can perform assigned duties with the restraint system fastened, and it allows for existing restraint systems which were designed to the inertial load factors established under the certification basis of the airplane.

See proposals 8-117 and 8-36 for related discussions.

Proposal 8-117. As in Proposal 8-116, several commenters objected to the proposed changes to § 121.311 which would require shoulder harnesses at each flight deck station. Several commenters also pointed out that shoulder harness installations now exist on airplanes which are designed to less than the present 9_g requirements of § 25.785. Other commenters noted that many flight attendant seats already have FAA-approved shoulder harnesses but not all possess a single point release. For a discussion of all of these comments see Proposal 8-116. Qualifying statements have been added to the proposal to revise §§ 121.311(e) and (f). These changes are substantively identical to those added to § 91.200(a) and discussed in Proposal 8-116.

A commenter objected to the requirement in proposed § 121.311(f) that would require all flight attendant seats to meet the requirements of § 25.785 of this chapter. The commenter stated that some passenger seats are being used for required flight attendants due to their proximity to floor level exits. The FAA maintains that all flight attendants required by § 121.391 should have seats that meet the requirements of § 25.785. The phrase "required by § 121.391" has been deleted from § 121.311(f) and a new § 121.311(f)(3) has been added to clarify that the requirements of § 25.785(h) are not applicable to passenger seats occupied by flight attendants not required by § 121.391.

A commenter pointed out that there was no time period for effecting compliance and suggested at least two years be allowed for retrofit of these restraint systems. In order to provide some time for compliance, proposed § 121.311(f) is revised substantively identical to revised § 91.200(b) (see Proposal 8-116).

Several commenters pointed out that the compliance time proposed for §§ 121.311(e)(2), (f), (g), and (h) does not permit adequate time for design, fabrication, and retrofit. The FAA is satisfied that the time proposed is a realistic period for accomplishing these tasks. However, the FAA recognizes that conditions beyond the control of a certificate holder can occur to delay compliance with the rule. This could be the case even though a good faith effort was made by a certificate holder to comply. Because of this, proposed §§ 121.311(e)(2), (f) and (h) have been revised to provide, under appropriate circumstances, for a limited extension of the compliance date in accordance with a schedule acceptable to the FAA. Section 121.311(j) describes the prerequisites for any operator to obtain an extension of the compliance dates established by the amendment. To be eligible for an extension, each operator must demonstrate that it is unable to comply due to circumstances beyond its control. In addition, the operator must submit a schedule showing that compliance will be achieved at the earliest practicable date. Any extension granted under this provision will be based upon the FAA's judgment as to the earliest date on which compliance is possible.

A commenter pointed out that proposed § 121.311(h) requires that each occupant of a seat equipped with a shoulder harness have the restraint system secured about him/her during takeoff and landing but does not require the occupant to be able to perform assigned duties with the shoulder harness fastened. Since the obvious intent of proposed § 121.311(h) was to require that the occupant of the seat be able to perform assigned duties with the shoulder harness attached, proposed § 121.311(h) is revised accordingly.

No unfavorable comments were received on the proposal to amend § 121.311(i) and the proposal is adopted without substantive change.

Proposal 8-118. The FAA withdrew the proposed new § 121.312(b) in a Notice published in the Federal Register on August 24, 1978 (43 FR 37703).

A commenter pointed out that airplanes in service have already been required to comply with the essential substance of proposed new § 121.312(c) by means of Airworthiness Directive 74-08-09, which applies to all transport category airplanes, and recommended that this proposal be deleted. The FAA agrees. Airworthiness Directive 74-08-09 applies to airplanes operated under Parts 91, 121, and 135 of the Federal Aviation Regulations, and the proposed new § 121.312(c) is redundant with respect to airplanes operated under Part 121. The proposed new § 121.312(c) is therefore withdrawn.

Proposal 8-119. No unfavorable comments were received on the proposal to delete § 121.321. Accordingly, the proposal is adopted without substantive change. For related discussion see Proposal 8-117.

ADOPTION OF THE AMENDMENT

Accordingly, Parts 23, 25, 27, 29, 91, and 121 of the Federal Aviation Regulations are amended effective March 6, 1980.

(Sections 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424); and Section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE: The FAA has determined that this document involves a proposed regulation which is non-significant under Executive Order 12044 as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the regulatory evaluation prepared for the regulations is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified above under the caption "FOR FURTHER INFORMATION CONTACT . . ."

Amendment 91-159A

Increase in Approved Takeoff Weights and Passenger Seating Capacities: Correction

Adopted: April 7, 1980 **Effective: April 14, 1980**

(Published in 45 FR 25046, April 14, 1980)

SUMMARY: This action makes editorial corrections to Special Federal Aviation Regulation (SFAR) 41 adopted on September 7, 1979. The SFAR prescribes additional airworthiness requirements applicable to certain existing multiengine small airplanes to allow an increase in approved takeoff weights and passenger seating capacities.

FOR FURTHER INFORMATION CONTACT:

Eli S. Newberger, Safety Regulations Staff, AVS-24, Federal Aviation Administration, 800 Independence Ave., S.W., Washington, D.C. 20591, Telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

This amendment of SFAR 41 (44 FR 53723, September 17, 1979) is editorial in nature to provide an omitted date, change an incorrectly stated date, and delete a regulatory reference listed in error.

As indicated in the preamble, SFAR 41 is applicable to existing propeller-driven multiengine small airplanes. The existing airplanes eligible for amended or supplemental type certificates are those type certificated prior to the effective date of the SFAR; i.e., October 17, 1979. This amendment provides the omitted date in paragraphs 1.(a) and 1.(b).

Paragraph 5.(b)(3) of the SFAR inadvertently cites the certification cutoff date of the given class of airplanes as July 1, 1970. Since this paragraph parallels § 135.169(b)(3), for consistency, the date is corrected to July 19, 1970.

Of the three sections of Appendix A, Part 135, referenced in paragraph 5.(c) of the SFAR, section 19.(b)(3) does not relate to landing requirements and was inadvertently included. Paragraph 5.(c) and the corresponding preamble discussion are amended by deleting the erroneous reference.

This amendment corrects the editorial errors as noted and good cause exists for making the amendment effective upon publication in the FEDERAL REGISTER [April 14, 1980].

ADOPTION OF AMENDMENT

Accordingly, the preamble of SFAR 41 and the text of SFAR 41 of the Federal Aviation Regulations (14 CFR SFAR 41) are amended, effective April 14, 1980.

[Secs. 313(a), 601, 603, and 604, Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).]

NOTE: The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Amendment 91-163

Technical Standard Order (TSO) Revision Program

Adopted: June 2, 1980 **Effective: September 9, 1980**

(Published in 45 FR 38342, June 9, 1980)

SUMMARY: The purpose of these amendments is to adopt a new public procedure to expedite the issuance of standards, known as Technical Standard Orders (TSO), for specified materials, parts, processes, and appliances used on civil aircraft. In accordance with Executive Order 12044, Improving Government Regulations, the new procedure will expedite TSO issuance and amendment, and will result in the substantial reduction of existing regulatory material. Consistent with the President's goal of reforming the regulatory process to eliminate unnecessary requirements, these amendments will enable the FAA to issue and amend TSO's in a timely manner. In addition, it is part of the FAA's continuing effort to simplify the Federal Aviation Regulations. The expeditious issuance of new TSO's and amendment of existing TSO's (presently published as Subpart B of Part 37) are necessary to stay current with the continuing growth and technological advances in aeronautics.

FOR FURTHER INFORMATION CONTACT:

Mr. Eli S. Newberger, Regulatory Projects Branch, AVS-24
Safety Regulations Staff
Associate Administrator for Aviation Standards
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591; Telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

BACKGROUND

Whenever a material, part, process, or appliance is to be used on an aircraft, it must be approved under the Federal Aviation Regulations (FAR) before it can be utilized. The approval can be obtained in one of the following ways: (1) under a Parts Manufacturer Approval issued under 14 CFR 21.303; (2) in conjunction with type certification procedures for a product, including approvals granted by a supplemental type certificate; (3) under a Technical Standard Order authorization or approval issued under 14 CFR Part 37; or (4) in any other manner approved by the Administrator.

One of the several methods of obtaining approval is by designing and testing the article (material, part, process, or appliance) in accordance with a TSO which contains minimum performance and quality control standards for specified articles. The standards for each TSO are those the Administrator finds necessary to ensure that the article concerned will operate satisfactorily. Since compliance with a TSO is only one method of obtaining an approval, the standards contained in the TSO are not mandatory but are only an optional way of obtaining approval for a particular article. For example, an applicant can obtain approval to deviate from a particular TSO if it shows that the design features provide an equivalent level of safety.

A TSO is not a standard of general or particular applicability designed to implement or prescribe law or policy. It does not fall within the definition of "rule" contained in the Administrative Procedure Act (5 U.S.C. 551). There is no requirement that a TSO be published as a notice of proposed rule making in the *Federal Register*.

Future TSO's will, through incorporation by reference, make maximum practical use of "voluntary standards" as defined by the Office of Management and Budget (OMB) Circular A-119, "Federal Participation in the Development and Use of Voluntary Standards," issued January 17, 1980 (45 FR 4326). By definition of OMB Circular A-119, "voluntary standards" are established generally by the private sector "voluntary standards bodies" and are available for use by any person or organization, private or government. The term includes what are commonly referred to as "industry standards" as well as "consensus standards" but does not include professional standards of personal conduct, private standards of individual firms, or standards mandated by law. "Voluntary standards bodies" are nongovernmental bodies which are broad based, multimember, domestic, and multinational organizations including, for example, nonprofit organizations, industry associations, and professional technical societies which develop, establish, or coordinate voluntary standards.

The FAA has determined, for the reasons stated in Notice 79-15, published in the *Federal Register* on October 1, 1979 (44 FR 56370), that, in the interest of safety, it is appropriate to adopt new public procedures to facilitate the issuance of TSO's for specified articles used on civil aircraft. The safety aspect of this rule making is particularly important. The fact that TSO's have been part of the complex regulatory structure of the FAA has caused a substantial lag time between regulations and state of the technology. This procedural change should advance by months and even years the implementation of technological improvements in the U.S. aviation system.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matters presented. Significant comments received in response to Notice 79-15 are discussed below. A number of substantive, editorial, and clarifying changes have been made to the proposed rules based on relevant comments and on further review within the FAA. Except for minor editorial and clarifying changes and the changes discussed below, these amendments and the reasons for their adoption are the same as those contained in Notice 79-15.

These amendments are consistent with the agency's responsibility to review the continuing need for regulations and the need to eliminate unnecessary regulations. By eliminating TSO's from the regulations, previously published as Subpart B of 14 CFR Part 37, and making them available through the multiple procedures described below, the FAA has improved the availability of the TSO's and made it easier for the public to locate the most up-to-date standard. In addition, by removing TSO's from the agency's regulatory process, the time available for other matters within the regulatory system will be increased. This will enable the agency to respond in a more timely manner to other issues submitted by the public. This improvement of the regulatory process, to be more responsive to the public, is consistent with Executive Order 12044, issued by President Carter on March 23, 1978.

DISCUSSION OF COMMENTS

Twenty-two individual sets of public comments were submitted in response to Notice 79-15. Several of the commenters were associations that presented the views of manufacturers, operators, and pilots. While the great majority of the commenters were in general agreement with the objective of the proposal, a number of them suggested changes, requested clarification or guidance, and offered specific criticisms. Other commenters proposed changes that are beyond the scope of this rule making.

DISCUSSION OF COMMENTS TO THE NEW PUBLIC PROCEDURE

In general, the commenters concerned themselves with the following questions: How would TSO authorizations be obtained? Would foreign countries accept them? How would a request for approval to deviate from any performance standard be handled? How would an interested party request a revision to a TSO? How would a current TSO be affected when a revision to the TSO is made? How would the public comment on a draft TSO? How would the FAA revise the sections of the Federal Aviation Regulations which reference a TSO by TSO number? One commenter expressed concern that adopting the proposal would abolish existing TSO's.

Based on comments received, the FAA has determined that the proposed new public procedure may not have been fully understood as it was explained in Notice 79-15. The purpose of the new public procedure is to expedite the issuance of TSO's for specified articles used on civil aircraft by deleting unnecessary rulemaking steps and by deleting unnecessary material from the regulations. This effort is consistent with Executive Order 12044. There is no change in the requirements for the issuance of TSO authorizations which are relocated from Subpart A of Part 37 to new Subpart O of Part 21. There is no change in the procedure to issue TSO authorizations, to process requests for approval to deviate from any performance standard, or to request a revision to a TSO. Existing holders of TSO authorizations will continue to retain their current status when new or amended TSO's are issued, unless otherwise specified in the TSO. Manufacturers may request approval to deviate from any TSO using the same procedures as before, now described in new § 21.609.

The new public procedure does not affect the right of the public to comment on a proposed TSO. The public will continue to be invited to participate in the development of documents prepared and issued by industry organizations which the FAA will use by reference in a TSO. The FAA will use the rulemaking process to revise the sections of the Federal Aviation Regulations which reference a TSO by TSO number when there is a need to change the referenced TSO number. The FAA will make available to any interested person an index of each current TSO and each TSO the FAA anticipates will be issued within the succeeding 12 months. The FAA will also invite comments from interested persons on each proposed TSO using a notice in the *Federal Register*.

PUBLIC PROCEDURE

The following is the public procedure, in detail, the FAA will use to develop and issue final TSO's for specified articles used on civil aircraft:

- The FAA will continue to develop draft TSO's and will continue to use, by reference in the TSO, documents prepared and issued by organizations such as the Radio Technical Commission for Aeronautics (RTCA) and the Society of Automotive Engineers (SAE). Notices of RTCA meetings and invitations will continue to be published in the *Federal Register*. This will allow public participation at the early stages of document development.
- Any interested person may request the Administrator to revise or issue a new TSO by submitting a description of the revision sought or a description of the new article for which a TSO is requested.
- The FAA will use several methods to ensure that the public is afforded early opportunities to take part in the TSO decisionmaking process. A draft TSO will be circulated for public comment through the use of mailing lists. Any individual or organization can request to be placed on the TSO mailing list. All those on the list will receive drafts of each TSO. In addition, Advisory Circular 20-110, Index of Aviation Technical Standard Orders, will list those TSO's the FAA anticipates will be issued within the succeeding 12 months. Advisory Circular 20-110 will also list each current TSO and provide information on how to obtain copies of those desired. Finally, the FAA will publish periodically a notice in the *Federal Register* of each proposed TSO and provide notice of how to obtain a copy.
- Any individual or organization wishing to obtain copies of Advisory Circular 20-110, specific draft TSO's, or all such TSO's proposed by the FAA may be placed on a mailing list by submitting a request addressed to the Federal Aviation Administration, Office of Airworthiness, Aircraft Engineering Division, Systems Branch (AWS-130), 800 Independence Avenue, S.W., Washington, D.C. 20591, or by telephoning (202) 426-8395. Interested persons will receive copies of the Advisory Circular and copies of those draft TSO's requested. Any person wishing to submit comments on a proposed TSO will be given 90 days from its issuance date to submit comments.
- All comments received on or before the closing date for comments will be considered by the Administrator before issuing a final TSO.
- All comments submitted will be available, both before and after the closing date for comments, for examination by interested persons in Room 335, FAA Headquarters Building (FOB-10A), 800 Independence Avenue, S.W., Washington, D.C. 20591, between 8:30 a.m. and 5:00 p.m.
- Copies of the final TSO will be mailed to all persons on the mailing list. As in the past, documents prepared and issued by an organization that are incorporated by reference in the TSO will continue to be available to any interested person only from that organization. Final TSO's will not be published in the *Federal Register*.

- Copies of all draft and final TSO's will also be available at FAA Headquarters in the Office if Airworthiness, Aircraft Engineering Division, Systems Branch (AWS-130), and at all regional Flight Standards Engineering and Manufacturing offices.

In summary, the new procedure has numerous opportunities for the public to participate in the development of each TSO. These are: (1) participation in the development of documents prepared and issued by industry organizations, which the FAA may use by reference in a TSO; (2) mailing lists to circulate a draft TSO to the public for comment; (3) an advisory circular to list for the public each TSO the FAA anticipates will be issued within the succeeding 12 months; (4) notice in the *Federal Register* announcing the availability of each draft TSO and invitation for comment; and (5) at least 90 days to submit comments.

DISCUSSION OF GENERAL COMMENTS

One commenter recommended tightening the TSO requirements, citing three airplane incidents (the loss of a piece of tail, the loss of a wing flap, and the failure of a rear bulkhead). This amendment does not address the requirements of any individual TSO. Furthermore, TSO authorizations are not issued for the airframe parts that the commenter cited. FAA approval for these airframe parts is accomplished under the type design approval for the specific airplane.

One commenter cited TSO references in §§ 91.24(a), 91.52, and 121.360 and questioned if the FAA plans to revise these sections to delete the referenced TSO. The FAA is not revising the referenced TSO in these sections. Since Part 37 is being revoked by this amendment, references to TSO's using sections of Part 37 (§ 37.XXX) are revised to reference each TSO by the TSO number.

One commenter stated that there may be problems relating to the enforcement of the provisions of Advisory Circular 20-110 under proposed §§ 21.603(a), 21.607(a), 21.609, and 21.611. It is unclear to what this commenter is referring since the advisory circular merely lists each current TSO and each TSO the FAA anticipates will be issued within the succeeding 12 months.

DISCUSSION OF COMMENTS TO § 11.49(b)

Present § 11.49(b)(2) delegates authority to the Director, Flight Standards Service, to issue, amend, and repeal TSO's under Part 37. The notice proposed deletion of this delegation since Part 37 is being revoked. No unfavorable comments were received on the proposal. Accordingly, the proposal is adopted without change. However, it should be noted that the current FAA official responsible for TSO's is the Director of Airworthiness.

DISCUSSION OF COMMENTS TO § 21.3

Two commenters pointed out that § 21.3 contained most of the requirements of proposed § 21.617 and suggested deleting requirements in proposed § 21.617 that are duplicated in § 21.3. The FAA agrees and comments to proposed § 21.617 are discussed under § 21.3. Section 21.617 adopted by this amendment relates to a different subject than that of proposed § 21.617 which is discussed under § 21.617.

One commenter suggested revising proposed § 21.617(a) and (b) to require mechanical reliability reporting of TSO articles (currently required for Parts 121, 127, and 135 operators) for Part 91 operators or owners. The commenters cited greater user awareness of such problems for justification. Because the FAA is currently reviewing the entire mechanical reliability reporting program and the issue will be addressed at a later date, the suggestion was not adopted.

Another commenter asked if imported articles would be exempt from the reporting requirements of proposed § 21.617. Section 21.3(d)(2) does exempt foreign manufacturers from the reporting requirements of § 21.3(a) because there are existing means by which the FAA obtains the necessary information from the appropriate airworthiness authorities in the country of manufacture. As a result of the information provided by the foreign authorities, it is not necessary to apply the requirements of § 21.3(a) to foreign manufacturers.

Another commenter suggested removing the phrase "After January 3, 1971" from proposed § 21.617(a) and (b). Based on these comments and upon further consideration, the FAA has amended § 21.3(a), (b), (d), and (e)(3)(ii) to make them applicable to holders of a TSO authorization, relocated proposed § 21.617(f) to new § 21.3(f), deleted the phrase "After January 3, 1971," from § 21.3(a) and (b), and deleted proposed § 21.617.

DISCUSSION OF COMMENTS TO SUBPART O OF PART 21

No unfavorable comments were received on the proposal to amend § 21.305(b) or on proposed §§ 21.609, 21.611, 21.613, 21.615, 21.619, and 21.621. Accordingly, these proposals are adopted without substantive change.

One commenter suggested deleting § 21.305(d) and amending § 43.7 to specify that any alteration or major repair approvals granted under Part 43 be limited to the specific aircraft (by type and serial number) upon which work is performed. The commenter stated that the provisions of § 21.305(d) in conjunction with discretionary functions of § 43.7 would "administratively lead to arbitrary and capricious application of subjective standards." No proposal was made in Notice 79-15 to amend §§ 21.305(d) and 43.7 as suggested by the commenter. Furthermore, since the FAA does not have sufficient information at the present time to justify such amendments to §§ 21.305(d) and 43.7, the suggestion is not adopted.

One commenter suggested placing the TSO procedural requirements under Subpart K instead of proposed Subpart O and questioned the need for the proposed new Subpart O. Relocation of the procedural requirements of Subpart A of Part 37 in new Subpart O, as proposed, would retain the same paragraph format subdivisions which are easy to read and use. This would make the regulations easier to use for all members of the public. Therefore, these requirements are relocated in Subpart O.

One commenter suggested that TSO authorizations be transferable. The FAA does not agree. TSO authorizations are not transferable like type certificates because authorizations are issued based on the person's quality control system and ability to duplicate the article under the TSO system.

§ 21.601

No unfavorable comments were received on proposed § 21.601. However, the FAA is adopting an amendment to § 21.601 by adding paragraph 21.601(c) which states that the Administrator does not issue a TSO authorization if the manufacturing facilities for the product are located outside of the United States, unless the Administrator finds that the location places no undue burden on the FAA in administering applicable airworthiness requirements. This additional requirement is necessary to ensure that proper surveillance can be maintained over the manufacturer's facilities. The need to impose this restriction is based upon the type of surveillance necessary over a manufacturer having a TSO authorization. It is identical to the restriction placed upon manufacturing facilities to which type certificates are issued in accordance with § 21.43 and to which production certificates are issued in accordance with § 21.137 and reflects current practice. A new § 21.617 is adopted to address current practices for approving foreign-manufactured articles designed to TSO performance standards. The procedures of new § 21.617 provide an equivalent to the domestic TSO authorization.

§ 21.603

One commenter objected to proposed § 21.603(b) which continues to allow the holder of an FAA letter of acceptance of a statement of conformance, issued for an article before July 1, 1962, to continue to manufacture that article without obtaining a TSO authorization. The commenter stated that this establishes different levels of safety for the same product because it allows a product to continue to be manufactured under obsolete standards when that product could not meet current standards. Holders of such letters must comply with the requirements of §§ 21.607 through 21.615, 21.619, and 21.621. In general, when an application for TSO authorization is made, the applicable standards for the article are those in effect on the date of application. The FAA did not propose to revise § 21.603(b) to withdraw letters of acceptance issued before July 1, 1962, or any TSO authorization issued after July 1, 1962, and to require all manufacturers to demonstrate compliance with the current TSO performance standards. No unfavorable comments were received on the proposal to relocate the substance of § 37.3 to new § 21.603. Accordingly, the proposal is adopted without substantive change.

§ 21.605

One commenter recommended revising proposed § 21.605 (a)(2) to require one copy of the technical data required in the applicable TSO issued by the Administrator unless additional copies are requested by the Administrator. The FAA agrees this would reduce the number of copies of the technical data the applicant would need to submit. Another commenter suggested revising the last sentence of proposed § 21.605(a)(3) to add the phrase "or numbers (or combinations thereof)" between the words "letters" and "will." The commenter stated this would allow the use of suffix numerals as well as letters to designate minor changes to TSO articles. The FAA agrees. After further review, the FAA has determined that the use of part numbers in proposed §§ 21.605(a)(3) and 21.611(a) to identify minor design changes would simplify and expedite approval of such changes. This is consistent with Executive Order 12044 in that it lessens the regulatory burden on the public. Accordingly, § 21.605 is adopted with the noted changes.

§ 21.607

One commenter suggested deleting proposed § 21.607(d)(3) because the required weight information is not necessary as a part of the nameplate and it is provided elsewhere. The FAA agrees. Section 21.607(d)(3) is deleted and § 21.607(d) is renumbered. The same commenter recommended amending proposed § 21.607 to list the required data and information currently listed in the performance standards of each TSO to further simplify the TSO system. The FAA has determined that since the data and information listed in each TSO are not common to all TSO's, the recommendation, if adopted, would impose unnecessary requirements on some TSO authorization holders. Accordingly, proposed § 21.607 is adopted without substantive change.

Issue of Letters of TSO Design Approval: Import Appliances

New § 21.617

In order to implement the requirements contained in §§ 21.601(b)(2), 21.603(d) and 21.609(b), the FAA is adopting procedural requirements which reflect current practice for the issuance of letters of TSO design approval for import appliances (see discussion of § 21.601). New § 21.617, which is totally different in subject from proposed § 21.617 (see § 21.3), prescribes the procedural requirements and, as adopted, §§ 21.601(b)(3), 21.603(a), and 21.609(b) are revised to address foreign manufacturers. These procedural requirements reflect the current practice. Adopting this procedure causes no burden on any person and it has the benefit of formalizing the current practice. The FAA finds that notice and public procedure are unnecessary.

NOTE: This rule contains provisions for the issuance of a TSO authorization and a letter of TSO design approval. To differentiate, a TSO authorization is limited to manufacturers of articles (materials, parts, processes, or appliances) located in the United States. These manufacturers must comply with the requirement to submit quality control system data in addition to certifying that their design complies with the pertinent TSO. Conversely, a letter of TSO design approval is processed under the provisions of airworthiness bilateral agreements and is limited to appliances as defined in pertinent airworthiness bilateral agreements. Such approvals do not require submitting quality control data. The quality control integrity of these appliances is attested to by the Certificate of Airworthiness for Export issued by the civil airworthiness authority of the country of manufacture under the provisions of § 21.502.

NOTE: Any article approved under an FAA TSO authorization (domestic) or under a letter of TSO design approval (foreign) only attests to the conformity of the design and quality of the particular article against the TSO performance and quality control standards. It does not convey an installation approval. Accordingly, installation approval must be obtained in a manner acceptable to the Administrator for each particular product on which the article is to be installed. This is not a change in existing practice.

DISCUSSION OF COMMENTS TO PART 37

One commenter suggested revoking only Subpart B of Part 37. The FAA has determined that there is benefit in having all of the certification procedures for products and parts in Part 21 of the Federal Aviation Regulations. Accordingly, the proposal to revoke Part 37 is adopted without change.

NOTE: There is no change in reporting and/or recordkeeping requirements which are relocated from Subpart A of Part 37 to new Subpart O of Part 21.

ADOPTION OF THE AMENDMENTS

Accordingly, Parts 11, 21, 25, 29, 37, 91, 121, 127, and 135 of the Federal Aviation Regulations (14 CFR Parts 11, 21, 25, 29, 37, 91, 121, 127, and 135) are amended, effective September 9, 1980.

(Sections 303(d), 313(a), 601, 603, and 605, Federal Aviation Act of 1958, as amended (49 U.S.C. 1344, 1354(a), 1421, 1423, 1424, and 1425; Section 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE: The FAA has determined that this document involves regulations which are not considered to be significant under the procedures and criteria prescribed by Executive Order 12044 and as implemented by the Department of Transportation Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

Amendment 91-164

Carriage of Candidates in Federal Elections

Adopted: June 23, 1980 **Effective: July 1, 1980**

(Published in 45 FR 43160, June 26, 1980)

SUMMARY: Special Federal Aviation Regulation (SFAR) 37 allows a person who is not in the air transportation business to receive limited payment for carriage of candidates in Federal elections without the carriage being considered a commercial operation, in accordance with regulations issued by the Federal Election Commission (FEC). This amendment codifies the requirements of SFAR 37 into the Federal Aviation Regulations (FAR). Conforming amendments are made to those provisions of the FAR which concern domestic, flag, and supplemental air carriers, commercial operators, scheduled air carriers with helicopters, and air taxi operators to make it clear that those parts do not apply to the operations covered by the new regulation.

FOR FURTHER INFORMATION CONTACT:

Mr. Harold E. Smith
Regulatory Projects Branch (AVS-24)
Safety Regulations Staff
Associate Administrator for Aviation Standards
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591
Telephone: (202) 755-8716

SUPPLEMENTARY INFORMATION:

BACKGROUND

SFAR 37, which became effective September 26, 1978, was issued to resolve a conflict that was created when compliance with the regulations of the FEC resulted in a violation of the FAR. Under the rules of the FEC, a candidate in a Federal election must pay for carriage in an aircraft. More specifically, the FEC rules state, in part, that when a candidate, candidate's agent, or person traveling on behalf of a candidate uses an airplane which is owned or leased by a corporation or labor organization, he or she must reimburse the aircraft operator. In the case of travel to a city served by regularly scheduled commercial service, reimbursement must be the first-class air fare. In the case of travel to a city not served by regularly scheduled commercial service, reimbursement must be the usual charter rate.

Under the FAR, an aircraft operated without compensation is operated pursuant to 14 CFR Part 91, General Operating and Flight Rules. If an operator receives compensation, he or she must have an appropriate operating certificate pursuant to Part 121, 127, or 135 of the FAR. Before FEC regulations affecting the carriage of candidates were promulgated in 1977, operators were not restricted in the carriage of candidates without compensation; however, after the FEC regulations were issued, candidates were required to make payment to operators who carried them. Instances have occurred in which individuals or corporations operating aircraft have desired to carry a candidate without charge, but the candidate would be required to compensate the operator to comply with the rules of the FEC. Receipt of payment by an aircraft operator without an appropriate operating certificate would result in a violation of the FAR. Therefore, a situation was created in which compliance with the regulations of the FEC results in a violation of the requirements of the FAR. SFAR 37 was issued to harmonize the rules of the FAA and the FEC consistent with the President's regulatory reform philosophy (Executive Order 12044).

SFAR 37 invited the public to submit their views to the FAA for inclusion in the rules docket. Sixty-three comments have been received, the vast majority of which were submitted by air taxi and commercial operators. A letter from the FEC commends the FAA for making it easier for pilots, aircraft owners, and Federal candidates to comply with FEC regulations and those of the FAA by eliminating a point of conflict between the regulations of the two agencies. One commenter states that it would be in the public interest to incorporate the SFAR into the regulations to relieve the restriction and make FAA rules consistent with FEC rules.

The commenters' principal objection to SFAR 37 is that the rule encourages unsafe operations since it does not impose the certification requirements applicable to commercial operators.

As stated previously, an operation for compensation generally requires an appropriate operating certificate. However, the carriage of candidates by an aircraft operator not in the air transportation business for a limited form of payment is not considered a commercial operation. The mere fact that payment is received by the operator because it is compelled by the FEC's rules does not mean that the operator should be regulated like an air carrier or commercial operator. Payment is sharply limited by the FEC, the recovery generally not even meeting expenses incurred for the flight. In addition, the operators affected by these amendments are a limited group, and their carriage of candidates is conducted on an infrequent basis for only short periods of time every few years. These operators are no different from anyone else flying under the general operating rules of the FAR because they are not engaged in the business of carrying passengers.

An adequate level of safety will be maintained because all operations conducted under these amendments will be governed by the provisions of FAR Part 91. This Part governs the majority of aircraft operations conducted by U.S.-registered aircraft, and all operations conducted within the United States. Part 91 adequately provides for the safety of aircraft operations by requiring that aircraft be maintained and operated in a safe manner. It provides, for example, that no person may operate an aircraft unless it has had an annual inspection and has been maintained in an airworthy condition between inspections. In the case of large and turbine-powered (turbojet and turboprop) multiengine airplanes, the owner and operator must follow one of five detailed programs for the inspection of that airplane. From an operationsl standpoint, Part 91 prescribes standards in the following areas, among others: use of seat belts; fuel requirements for flight both under VFR and in IFR conditions; transponder and altitude reporting equipment and use; and supplemental oxygen requirements. In addition, the provisions of FAR Part 61, Certification: Pilots and Flight Instructors, require each crewmember to maintain currency and by fully qualified for the type of operation to be conducted. Part 61 contains, among other things, proficiency check requirements and recent flight experience requirements for pilots in command, as well as qualification requirements for persons serving as second in command. Accordingly, the FAA does not agree that these amendments, which allow the carriage of candidates for payment to be conducted under Part 91, will encourage unsafe operations.

Another group of commenters states that SFAR 37 promotes unfair competition since air taxi and commercial operators, unlike their counterparts who operate under the SFAR, must bear a considerable expense in complying with FAA-imposed regulations under Part 135. The FAA does not agree with this view. The carriage of candidates in Federal elections is infrequent and the operator who is involved in such carriage does not intend to engage in the business of being an air carrier or commercial operator. These operators are accepting payment only because FEC rules require them to do so. They are not flying for profit but instead are receiving a limited form of compensation which in virtually all cases would not cover the total direct and indirect expenses of the flight. These operators are not holding themselves out to the public for business, but are rather involved in private arrangements with candidates with whom they are oftentimes well acquainted on a personal level. It must be emphasized that an operator carrying political candidates in accordance with this regulation would be required to comply with Part 121, 127, or 135 of the FAR in more than the minimal compensation required by the FEC regulations is received.

Another objection to the SFAR is that it was implemented without proper notice and solicitation of comment. However, adequate legal justification was set forth in the SFAR for proceeding without notice. A finding of good cause was made for dispensing with notice and public procedure, and this finding was in compliance with the requirements of the Administrative Procedure Act. The FAA, in accordance with Department of Transportation policy, solicited post-issuance comments which have been considered.

Several commenters point out that operators under SFAR 37 would suffer serious repercussions in the event of an accident because of insurance problems, as most policies for the operation of business and pleasure aircraft do not cover flights for hire. Insurance coverage is a private matter which every Part 91 operator must consider, and with which the FAA does not generally concern itself. It should be noted, however, that operators who are affected by this amendment are usually knowledgeable corporations which have their aircraft insurance program reviewed by competent underwriters. Insurance coverage can be arranged to accommodate these infrequent operations in the same manner as it is arranged for operations under Subpart D of Part 91 where a limited form of compensation is allowed.

DESCRIPTION OF THE AMENDMENTS

Part 91 is amended to provide that an aircraft operator, other than one operating an aircraft under the rules of Part 121, 127, or 135, may receive payment for the carriage of a candidate in a Federal election, an agent of the candidate, or a person traveling on behalf of the candidate while operating under the rules of that Part. The operator's primary business may not be that of an air carrier or commercial operator, the carriage must be conducted under the rules of Part 91, and the payment for the carriage must be required by regulations of the FEC. Parts 121, 127, and 135 are amended to make it clear that they do not apply to the operations described in this new Part 91 regulation.

NEED FOR IMMEDIATE ADOPTION

Due to the imminent Federal election campaigns of 1980, I find that the reasons which justified the adoption of SFAR 37 still exist. Since these amendments continue the provisions of a currently operative SFAR and impose no additional burden on any person, I find that notice and public procedure are impracticable and contrary to the public interest and that good cause exists for making them effective in less than 30 days.

THE AMENDMENTS

Accordingly, the Federal Aviation Administration amends Parts 91, 121, 127, and 135 of the Federal Aviation Regulations effective July 1, 1980.

(Secs. 313(a), 601, and 604 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, and 1424); Sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE—The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, the FAA has determined that the expected impact of the regulation is so minimal that it does not require an evaluation.

Amendment 91-165

Operations Review Program: Amendment No. 9

Adopted: July 1, 1980 **Effective: September 9, 1980**

(Published in 45 FR 46736, July 10, 1980)

SUMMARY: These amendments update and improve certain requirements applicable to general operations and flight, to airmen other than flight crewmembers, and to domestic, flag, and supplemental air carriers and commercial operators of large aircraft. These amendments are part of the Operations Review Program and are based on a compilation of proposals discussed at the Operations Review Conference.

FOR FURTHER INFORMATION CONTACT: Mr. Norman C. Miller, Regulatory Review Branch, AVS-22, Safety Regulations Staff, Associate Administrator for Aviation Standards, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; Telephone: (202) 755-8714.

SUPPLEMENTARY INFORMATION:

History

This amendment is issued as part of the Operations Review Program. The following amendments have previously been issued as part of this program:

	Title and Federal Register (FR) Citation
Amendment No. 1:	Clarifying and Editorial Changes (41 FR 47227; October 28, 1976).
Amendment No. 2:	Rotorcraft External-Load Operations (42 FR 24296; May 12, 1977 and 42 FR 32531; June 27, 1977).
Amendment No. 2A:	Special Federal Aviation Regulation No. 36, Development of Major Repair Data (43 FR 3084; January 23, 1978).
Amendment No. 3:	Airspace, Air Traffic, and General Operating Rules (44 FR 15654; March 15, 1979).
Amendment No. 4:	Miscellaneous Amendments (43 FR 22636; May 25, 1978).
Amendment No. 5:	Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft (43 FR 22643; May 25, 1978, 43 FR 28403; June 29, 1978, and 44 FR 25201; April 30, 1979).
Amendment No. 6:	General Operating and Flight Rules and Related Airworthiness Standards and Crewmember Training (43 FR 46230; October 5, 1978).
Amendment No. 10:	Airworthiness, Equipment, and Operating Rules (44 FR 61323; October 25, 1979).

These amendments are based on Notice of Proposed Rule Making 78-11 published in the Federal Register on August 17, 1978 (43 FR 36464). Interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review by the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and reasons for their adoption are the same as those contained in Notice 78-11.

Discussion of Comments

The following discussions are keyed to the like-numbered proposals contained in Notice 78-11.

Proposals 9-1 and 9-2. These proposals would allow applicants for a flight engineer certificate, or for an additional class rating on an existing certificate, to complete the flight portion of the practical test and to gain operational experience in an approved simulator for the type of aircraft on which the applicant would serve. The comments received reflected many inconsistencies in these proposals, such as: (1) whether the Flight Engineer Certificate would be issued after the practical test or after completion of the operating experience; (2) that there were no guidelines established for an approved simulator under Part 63; (3) that there were no qualifications specified for the position of a "check flight engineer"; and (4) that § 121.434 requires initial operating experience to be obtained on an airplane and has not been amended to allow such experience to be gained in a simulator. Therefore, § 121.434 is compatible with § 63.40. Correction of these inconsistencies would result in what is, in effect, a new rule upon which the public has not had the opportunity to comment. These proposals are withdrawn for further study.

Proposal 9-3. This proposal would exempt an applicant for a flight engineer certificate, employed by a Part 121 certificate holder, from the 10-hour flight training requirement in Appendix C of Part 63 if that applicant successfully completes an approved training program and is recommended by an instructor.

Paragraph (a)(3)(iv)(b) of Appendix C of Part 63 already allows an applicant, who holds at least a commercial pilot certificate with an instrument rating, to substitute training received in either a training device or simulator for up to all the required 10 hours of airplane time. A Part 121 certificate holder can take advantage of the reduced flight time provisions by applying for such a course under the provisions of § 63.43. The FAA considers the requirements of Appendix C of Part 63 to be the minimum training required for a flight engineer certificate.

After comprehensive review of the proposal and all comments, and recognition of the relative ease by which a Part 121 certificate holder can obtain a Part 63 flight engineer training course and the FAA policy to simplify and streamline regulations, further relief is unnecessary and the proposal is withdrawn.

Proposal 9-4. All comments favor the deletion of § 65.15a, which allows the reissuance of certificates without expiration dates to persons who are not U.S. citizens, and it is deleted and reversed.

Proposal 9-5. All commenters favor the change to § 65.81, "General privileges and limitations," which adds the words "preventive maintenance" to this section to make it consistent with § 43.3 which authorizes persons to perform maintenance, preventive maintenance, rebuilding and alterations, and it is adopted without substantive change. This extends the present privileges and limitations for maintenance, rebuilding, and alterations to preventive maintenance and § 65.81 is adopted without substantive change.

Proposal 9-6. A majority of commenters favor adoption of § 65.93 which provides additional qualifying activities for renewal of inspection authorization (IA) including recurrent training. Several commenters recommend that performance of inspections under § 91.217 be included as an additional qualifying activity for IA renewal. A certificated mechanic may perform inspections under § 91.217, but they are not inspections that must be performed only by a person holding an IA. The eligibility for renewal of an IA should not be determined on the basis of § 91.217 inspections but should be based on those inspections which only an IA may do.

One commenter suggests that the person holding an IA should present a list of the aircraft that person inspected during the previous year as evidence of that person's activity. Section 65.93 does not require a list. This requirement would impose additional and unnecessary recording requirements on the IA applicant.

Accordingly, § 65.93 is adopted without substantive change.

Proposal 9-7. All commenters favor § 65.103 which: (1) extends to certificated repairmen the privileges of performing preventive maintenance or alterations already authorized under § 43.3(a); (2) replaces the phrase "maintenance manual" in § 65.103(b) with the phrase "instructions for continued airworthiness" for consistency with the concept of continued airworthiness used throughout the FAR (Parts 43, 121, 127 and 135) and because instructions may exist in documents other than maintenance manuals; and (3) replaces the phrase "repair station, commercial operator, or air carrier" with the phrase "certificate holder" since all of the listed organizations are certificated holders. Section 65.103 is adopted without substantive change.

Proposals 9-8 and 9-9. Sections 121.97 and 121.117 would require the certificate holders to establish and maintain an approved system to obtain, disseminate and use, on a continuous basis, current aeronautical data for each airport the holders serve. One commenter objects to requiring airport data stating it is unnecessary, unrealistic, should be withdrawn, and that many of the requirements are not clearly stated. Another commenter states that the sections duplicate information now provided for FAA airport certification. A third commenter states that the requirement for an approved system involves the decision of a principal operations inspector, who has little or no guidance on which to base the approval.

The FAA has determined that expansion of the present rules to describe the airport data and provide an approved system for its collection and dissemination is necessary. Present rules do not adequately describe the airport data which the air carrier must have available. In addition, National Transportation Safety Board (NTSB) Report 72-17 (Pan American World Airways Boeing 747 San Francisco, CA; July 30, 1971) states that "irregularities involving the collection and dissemination of airport information" cause the air carrier operational control systems to be ineffective.

No comments were received on the proposed 1-year compliance date. Under the requirements of §§ 121.97 and 121.117, each certificate holder must have an approved system for obtaining, maintaining, and distributing the current aeronautical data specified in §§ 121.97(b) and 121.117(b). The FAA estimates that, depending on the size and complexity of each certificate holder's operation, it will take approximately 6 months to gather the required information and another 6 months to design, establish, and gain approval of such a comprehensive system. Accordingly, §§ 121.97 and 121.117 take effect 1 year after the effective date of these amendments. Although these sections may duplicate some information required for airport certification under Part 139, a comprehensive system ensures that the air carrier has adequate airport and other data available for safe operation. To provide guidance for the principal operations inspectors and the public in obtaining approval of this system, an advisory circular will be issued. After considering the comments, §§ 121.97 and 121.117 are adopted without substantive change.

Proposal 9-10. This proposal would require all Part 121 certificate holders to provide guidance in their operations manuals to enable their flight and ground operations personnel to recognize and handle packages containing hazardous materials. One commenter objects to § 121.135(b)(23) stating it is unnecessary, unrealistic, and should be withdrawn. The commenter argues that training programs now exist for air carriers that carry hazardous material and to require training for those operators not engaged in the carriage of that cargo is a waste of time. The rule requires that Part 121 certificate holders who do not carry hazardous materials have procedures and instructions of sufficient detail to ensure that their employees can recognize shipments of these materials and refuse to accept them. This reduces the possibility of the carrier inadvertently carrying them. No comments were received on the proposed 90-day compliance date. Ninety days allow adequate time for the operator to include these procedures and instructions in their operations manuals. Accordingly, § 121.135(b)(3) is adopted without substantive change.

Proposal 9-11. All commenters support § 121.137. This proposal requires each person to whom a manual or appropriate parts of it are furnished, to have it accessible when performing assigned duties. One commenter wants the words "each person" changed to "each crewmember" and wants to require the crewmember to carry or have the manual or appropriate parts available for other persons to use. The manual contains company procedures and guidance for both crewmembers and ground personnel. The rule does not restrict its use to crewmembers. The manual must be accessible to every person when performing assigned duties. Accordingly, § 121.137 is adopted without substantive change.

Proposal 9-12. All comments support § 121.161(a) to require certificate holders to comply with the same route and airport restrictions for passenger and cargo operations. Section 121.161(a) is adopted without substantive change.

Proposal 9-13. All comments support § 121.163 that allows a reduction of proving tests if a satisfactory level of proficiency is demonstrated. Section 121.163 is adopted without substantive change.

Amendment to § 91.33

Amendment No. 91-154 (43 FR 46230; October 5, 1978) amended § 91.33 to require that after December 4, 1980, each safety belt in an aircraft must be equipped with an approved metal to metal latching device. As discussed in the preamble to that amendment, the FAA intended to allow 3 years to install the metal to metal latching devices. However, the compliance period was inadvertently set at 2 years. This amendment corrects the discrepancy by setting a 3-year compliance period. Since this amendment is relaxatory and clarifying in nature and does not impose a burden on the public, I find that notice and public procedure are unnecessary and that good cause exists for adopting this amendment.

Amendment to § 121.220

Amendment No. 121-154 (45 FR 3880; January 21, 1980) incorrectly designated the cabin zone concentration requirements as § 121.220, placing them in Subpart J, Special Airworthiness Requirements. The proper location for this requirement is in Subpart T, Flight Operations, since it is an operational requirement. Accordingly, § 121.220 is redesignated as § 121.578.

Adoption of the Amendments

Accordingly, Parts 65, 91, and 121 of the Federal Aviation Regulations (14 CFR Parts 65, 91, and 121) are amended effective September 9, 1980.

(Secs. 313, 314, and 601 through 610, Federal Aviation Act of 1958 (49 U.S.C. 1354, 1355, and 1421 through 1430) and section 6(c), Department of Transportation Act (49 U.S.C. 1655(c)))

NOTE—The Federal Aviation Administration has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this document is contained in the docket. A copy of it may be obtained by writing to the person and address listed under "For Futher Information Contact."

Amendment 91-166
Redelegation of Authority

Adopted: July 8, 1980 **Effective: September 10, 1980**

(Published in 45 FR 47837, July 17, 1980)

SUMMARY: These amendments redelegate authority formerly held by the Director, Flight Standards Service, to the Director of Airworthiness or the Director of Flight Operations, as appropriate. These amendments are necessary because of a reorganization within FAA Headquarters.

FOR FURTHER INFORMATION CONTACT: Mr. Eli Newberger, Regulatory Projects Branch (AVS-24), Safety Regulations Staff, Associate Administrator for Aviation Standards, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; Telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION: In 1979 Flight Standards Service was reorganized under the Associate Administrator for Aviation Standards. Flight Standards Service was abolished and the Offices of Airworthiness, Flight Operations, and Aviation Safety were established. References to the Director, Flight Standards Service, contained in the Federal Aviation Regulations need to be redelegated to the appropriate new office. In addition, since § 11.49(b)(2) was deleted by Amendment 11-18 (45 FR 38342), § 11.49(b)(3) is designated § 11.49(b)(2).

NOTICE AND PUBLIC PROCEDURE

Since these amendments are editorial and administrative in nature and impose no burden on the public, I find that notice and public procedure are unnecessary.

THE AMENDMENTS

Accordingly, Parts 11, 91, 121, 135, and 137 of the Federal Aviation Regulations (14 CFR Parts 11, 91, 121, 135, 137) are amended, effective September 10, 1980.

[Sections 313(a), 314(a), 601 through 610, and 1102 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421 through 1430, and 1502); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).]

NOTE—The Federal Aviation Administration has determined that this document involves a regulation that is not significant under Executive Order 12044, as implemented by the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, since these documents are editorial in nature and impose no additional burden on any person, the Federal Aviation Administration has determined that there will be no economic impact and thus no evaluation is required.

Amendment 91-167

Airworthiness Review Program—Amendment No. 8A: Aircraft, Engine, and Propeller Airworthiness, and Procedural Amendments

Adopted: August 27, 1980 **Effective: October 14, 1980**

(Published in 45 FR 60154, September 11, 1980)

SUMMARY: These amendments to the Federal Aviation Regulations update and improve the airworthiness standards applicable to the type certification of aircraft, engines, propellers, related operating rules, and procedural requirements. These amendments are part of the Airworthiness Review Program.

FOR FURTHER INFORMATION CONTACT:

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Federal Aviation Administration
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SUPPLEMENTARY INFORMATION:

These amendments are the ninth and last in a series of amendments issued as part of the Airworthiness Review Program. The following amendments have previously been issued as part of this program:

Title and FEDERAL REGISTER (FR) Citation

Amendment No. 1: Form Number and Clarifying Revisions (40 FR 2576; Jan. 14, 1975)
Amendment No. 2: Rotorcraft Anticollision Light Standards (41 FR 5290; Feb. 5, 1976)
Amendment No. 3: Miscellaneous Amendments (41 FR 55454; Dec. 20, 1976)
Amendment No. 4: Powerplant Amendments (42 FR 15034; March 17, 1977)
Amendment No. 5: Equipment and Systems Amendments (42 FR 36960; July 18, 1977)
Amendment No. 6: Flight Amendments (43 FR 2302; Jan. 16, 1978)
Amendment No. 7: Airframe Amendments (43 FR 50578; Oct. 30, 1978)
Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; Feb. 4, 1980)

These amendments are for the most part based on Notice 75-31 which was published in the FEDERAL REGISTER on July 11, 1975 (40 FR 29410), as well as a number of proposals contained in the following notices of proposed rule making: Notice 75-10 (40 FR 10802; March 7, 1975); Notice 75-19 (40 FR 21866; May 19, 1975); and Notice 75-26 (40 FR 24802; June 10, 1975). Amendments based on the latter three notices have already been issued as a part of the Airworthiness Review Program, specifically those titled Miscellaneous Amendments, Powerplant Amendments, and Airframe Amendments, respectively. Final action on certain of the proposals was deferred, however, at the time the amendments were issued as further consideration and review of these proposals was considered necessary. In other cases, final action was deferred so that they could be considered together with related proposals contained in other notices.

Certain proposals identified as Group 2 in Appendix I to Notice 75-31 were deferred to be dealt with in a later notice as a part of the Airworthiness Review Program. These proposals all addressed the concept of periodically updating the certification basis of airplane models in long-term production. Such recertification every five or ten years would be intended to ensure that the level of safety of all airplanes in service keep pace with the current level of safety expectations. The FAA has now determined that these proposals more appropriately should be examined as a separate issue in a future regulatory action. Accordingly, the proposals identified as Group 2 in Appendix 1 to Notice 75-31 are being dropped from the Airworthiness Review Program.

Proposals relating to cabin safety and flight attendants, which are identified in this amendment, were extracted from Notice 75-31 (40 FR 29410; July 11, 1975) and handled on an expedited basis. Those rules were published in the Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. The proposals and comments are discussed below. Substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and further review within the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and the reasons for them are the same as those contained in Notices 75-10, 75-19, 75-26, and 75-31.

DISCUSSION OF COMMENTS

The following discussions are keyed to the like-numbered proposals contained in Notices 75-10, 75-19, 75-26, and 75-31, and are presented in the same order as the corresponding amendments found in the rules portion of this document.

Proposal 8-1. The proposal to amend § 1.1 in order to transfer the definitions for rated power and thrust to a new § 33.6 is withdrawn. It is considered that such a change may introduce confusion in the administration of aircraft certification rules. See also Proposal 8-94.

Proposal 8-2. Several commenters object to proposed § 21.16(a) which would delete reference to a "novel and unusual design feature" as a necessary condition for the Administrator to issue special conditions. Special conditions become a part of the designated applicable regulations for type certification of a particular product (aircraft, aircraft engine, or propeller).

One commenter indicates that the proposed revision is unjustified and would lead to indiscriminate rule making, and that instead of simplifying the administration of the requirements it would introduce complexity. Another commenter claims that adoption of proposed § 21.16(a) would introduce uncertainty into design requirements.

One commenter suggests that in lieu of revising § 21.16, the FAA should perform a study of § 21.21(b) (2). (Section 21.21(b) (2) provides for denial of a type certificate if an unsafe feature or characteristic exists in the design under consideration. Before adoption of § 21.16, FAA used § 21.21(b) (2) to issue special conditions in letter form.) This commenter suggests that if § 21.21(b) (2) were to continue to be used to issue special conditions to cover an unsafe design feature or characteristic that is not "novel or unusual," it must be equally applicable to a condition that exists on more than one (earlier certificated) product, further stating that the other product or products must then have been type certificated using existing rules which did not adequately cover the unsafe design feature or characteristic. On this premise, the same commenter asks several relevant questions. When § 21.21(b) (2) is applied, does the FAA make it retroactive to the other involved models? Are Airworthiness Directives (Part 39) issued? Why wasn't a special condition issued against the first applicant when the condition was, in fact, novel or unusual? Why was this not followed by a notice of proposed rule making for future application?

These comments and questions caused the FAA to completely reevaluate its practices in designating the applicable regulations for type certification under § 21.17(a), commonly referred to as defining a "type certification basis."

After further consideration of the comments received as well as FAA practice in designating the applicable regulations, and the objectives of proposed § 21.16, the FAA agrees that this proposal should be withdrawn because of the potential for possible abuse of general rulemaking procedures, of the requirements of the Administrative Procedure Act, and the intent of Executive Order 12044. As explained below, the objectives of proposed § 21.16 will be satisfied by the application of a new FAA policy affecting the designation of applicable regulations for the type certification of new aircraft, aircraft engines, and propeller designs. These future practices are consistent with the FAA General Rule-Making Procedures of Part 11, the Administrative Procedure Act, and Executive Order 12044.

Section 21.16 is one paragraph of a number of paragraphs used to define the type certification basis of a new product. Companion paragraphs of importance to this discussion include §§ 21.17 and 21.21. Section 21.17(a) provides that the applicable airworthiness standards are (1) those requirements of this subchapter that are effective on the date of application for a type certificate, unless otherwise specified by the Administrator or unless compliance with later effective amendments is elected by the applicant or required by special retroactive regulations (e.g., § 25.2), and (2) any special conditions prescribed by the Administrator in accordance with § 21.16. Section 21.16 provides for the issuance of special conditions when the Administrator finds that the existing airworthiness standards do not contain adequate or appropriate safety standards *because of novel or unusual design features* of the product to be type certificated. Section 21.21(b) (1) permits noncompliance with specific provisions of the airworthiness standards when there are compensating factors that provide an equivalent level of safety. Such determinations are commonly referred to as "equivalent safety findings." Section 21.21(b) (2) provides for the denial of a type certificate, notwithstanding a showing of compliance with the applicable airworthiness standards designated in accordance with § 21.17, if the Administrator finds an unsafe feature or characteristic of the product for the category in which certification is requested.

Sections 21.16, 21.17, and 21.21, taken together with FAA policy in designating the applicable regulations must recognize and balance four important considerations: (1) the FAA has an obligation under Section 601 of the Federal Aviation Act of 1958 to keep the airworthiness standards of this subchapter (i.e., FARs 23, 25, 27, 29, 31, 33, and 35) as current as practicable; (2) the type certificate applicant has a right and a need to know, in very specific terms, what the applicable airworthiness standards will be in order to finalize the detail design of its product and to enable the applicant to make reasonable performance guarantees to its potential customers; (3) in the interests of safety, rapid technological advances presently being made by the civil aircraft industry require that the FAA be able to issue special conditions to address truly novel or unusual design features that it has, as yet, not had an adequate opportunity to envisage in the airworthiness standards through the general rulemaking process; and (4) because the airworthiness standards of this subchapter are intentionally objective in nature to allow flexibility in design, the FAA must retain the prerogatives both to make equivalent safety findings and to deny a type certificate whenever an unsafe design feature or characteristic is found during the type certification process.

The phrase "novel or unusual" as used in § 21.16 is a very relative term. As used hereafter in applying § 21.16 to justify the issuance of special conditions, "novel or unusual" will be taken with respect to the state of technology envisaged by the applicable airworthiness standards of this subchapter. It must be recognized that in some areas which will vary from time to time the state of the regulations may somewhat lag the state of the art in new design because of the rapidity in which the state of the art is advancing in civil aeronautical design and because of the time required to develop the experience base needed by the FAA to proceed with general rule making. Applicants for type certification of a new design have the opportunity to mitigate the impact of not knowing the precise airworthiness standards to be applied for "novel or unusual design features" by consulting with the FAA early in their certification planning when such features are suspected or known by the applicant to exist. It should also be recognized that, because of the intentional objective nature of the airworthiness standards of this subchapter, many new design features which might be thought of as "novel or unusual design features" may already be adequately covered by existing regulations, thus obviating the need to issue special conditions.

Henceforth, the special condition will not be issued for general upgrading of the applicable airworthiness standards when novel or unusual design features are not involved. Whenever the FAA determines that an upgrading of the airworthiness standards of this subchapter is warranted, the upgrading will be promulgated as an amendment to this subchapter consistent with the general rulemaking procedures of FAR Part 11, the Administrative Procedure Act, and Executive Order 12044. Should the FAA conclude that there is a compelling safety need to apply a proposed amendment retroactively to designs already type certificated or to designs for which a type certificate application is in progress, the retroactive aspects of the proposed amendment, if supportable by a regulatory analysis completed in accordance with Executive Order 12044, will be announced in the notice or proposed rule making for that amendment. Public comments on the proposed retroactive aspects will be considered in determining the applicability of the adopted rule.

A number of products for which special conditions have not as yet been issued are undergoing type certification at the time of this amendment. Should the FAA conclude that recent or future amendments to this subchapter should be applied to these products that would not otherwise be applicable under § 21.17(a) (1) then an amendment to require retroactive application will be proposed and acted upon through the general rulemaking process explained above, in lieu of issuing special conditions under § 21.16.

Also, the provisions of § 21.21(b) (2) will no longer be used to justify the issuance of special conditions. However, just as an Airworthiness Directive may be issued under Part 39 to require the correction of an unsafe condition that is likely to exist or develop in a product of the same type design, notwithstanding a showing of compliance with the applicable airworthiness standards, § 21.21(b) (2) may continue to be used to deny issuance of a type certificate if a similar unsafe feature or characteristic is found during the type certification process, notwithstanding a showing of compliance with requirements designated by § 21.17. The unsafe features and characteristics envisaged by § 21.21(b) (2) are those related to specific design configuration or product characteristics of a particular design, that one would not normally expect the applicable airworthiness standards to specifically preclude because of their intentionally objective nature.

It is the practice of the FAA to develop and publish a Type Certificate Data Sheet as an integral part of each type certificate. The type certification basis is recorded on the Type Certificate Data Sheet for public information. In the future the type certification basis statement will identify not only the applicable regulation, including special conditions, but also will identify all exemptions issued pursuant to Part 11, together with "equivalent safety findings" made in accordance with § 21.21(b) (1).

For the above reasons, Proposal 8-2 is withdrawn.

In considering its disposition of the proposal to amend § 21.16(a), the FAA realizes that a "novel or unusual design feature" today may become a common design feature of the future. The issuance of a like special condition for several product designs will most likely compel general rule making on that subject and the history of that special condition could have a very strong influence on thinking when general rule making is initiated. Also, although special conditions are regulations of particular product applicability, they are issued only in the interest of public safety. For these reasons, Part 11, and § 21.16 of Part 21 are amended to require special conditions to be issued in accordance with the existing general rule-making procedures. As is now the case, a docket will continue to be maintained for each set of special conditions, and all material in the docket will continue to be available for public review.

Proposal 8-3. This proposal is one of a group of proposals dealing with the establishment of Instructions for Continued Airworthiness and the responsibilities of maintenance personnel and aircraft operators with respect to those instructions. The group is made up of the following proposals: 8-3, 8-5, 8-21, 8-25, 8-58, 8-62, 8-64, 8-67, 8-77, 8-80, 8-89, 8-91, 8-92, 8-93, 8-97, 8-98, 8-99, 8-104, 8-106, 8-107, 8-110, and 8-111.

A commenter representing a number of scheduled air carriers objects to the requirement in § 21.31(c) that the type design include the Airworthiness Limitations section of the Instructions for Continued Airworthiness because of the information to be included in that section. Although this commenter does not object to including mandatory replacement times for life-limited parts in the Airworthiness Limitations section, the commenter strongly objects to including inspection intervals and related procedures. Under proposed §§ 43.16 and 91.163(c), the commenter points out, air carriers would be required to comply with these maintenance-related airworthiness limitations. The FAA does not agree that inspection intervals and related procedures can be omitted from the Airworthiness Limitations section of the Instructions for Continued Airworthiness. For example, the proposed Airworthiness Limitations section on a transport category airplane must contain mandatory inspection intervals and related procedures because the damage-tolerance concept described in § 25.571 is predicated upon the use of such inspections to detect initial cracks in principal structural elements before crack growth under repeated loads could progress to a degree which would cause catastrophic failure of the airplane. However, the FAA does agree that §§ 43.16 and 91.163(c) should permit modification of these intervals and procedures by other FAA approved methods. Accordingly, inspection programs approved under §§ 121.25(b), 121.45, 121.367, 123.21(b), 127.13(b), 127.133, 135.5, 135.17, 135.419, 135.421, and 135.425, as defined by approved operations specifications, or an inspection program approved under § 91.217(e) constitute acceptable alternatives. The appendices to Parts 23, 25, 29, 31, 33, and 35 as adopted in this amendment require the applicant to specify (in the Airworthiness Limitations section) mandatory replacement times, inspection intervals, and related procedures. Sections 43.16 and 91.163(c) have been revised to show that only the inspection times and procedures may be adjusted under approved alternative programs.

A commenter objects to § 21.31(c), which in general is applicable to manufacturers, since continued airworthiness, which is covered in the paragraph, is the responsibility of the operator. Because this comment pertains more directly to § 21.50, it is dealt with in conjunction with Proposal 8-5.

In addition to comments relating to the Instructions for Continued Airworthiness, a commenter objects to § 21.31(a) because the proposal to include a list of drawings and specifications in the type design was not mentioned at the Airworthiness Review Conference. In fact, this proposal did appear as an FAA comment on Proposal No. 565 in the Committee I Workbook (titled "Procedures and Special Subjects") made available to all participants at the conference, and may be found in the docket.

Several commenters object to § 21.31(d) because including analyses in the type design—(1) would be redundant, since it is already required as part of the substantiating data; (2) is unnecessary, since the drawings and specifications required under current § 21.31(a) provide the general information needed by the FAA; and (3) introduces the possibility that the FAA would require the manufacturer to provide any and all data used to prepare the drawings and specifications, thereby delaying type certification. The FAA agrees that proposed § 21.31(d) would serve no useful purpose and it is withdrawn.

Proposal 8-4. A commenter objects that § 21.35(b) (2) eliminates flight testing for reliability, contending that analysis and ground test are not dependable as a basis for certification. In the light of this comment, and after further consideration and experience, the FAA has determined that flight testing for reliability does provide safety information not necessarily obtainable from analysis and ground test. Accordingly, the proposal to delete the reference to reliability in § 21.35(b) (2) is withdrawn.

No adverse comment was received on the proposal to replace the word "airplanes" in § 21.35(b) (2) with the word "aircraft" and this amendment to § 21.35(b) (2) is adopted without change.

Proposal 8-5. A commenter objects to the continued airworthiness provisions of § 21.50(b) (and also proposed § 21.31(c)) contending that—(1) continued airworthiness is the responsibility of the operator/owner; (2) current regulations in Parts 23 and 25 already require manufacturers to make available recommended maintenance procedures for the product at the time of its delivery; (3) current operating rules require the operator/owner to establish and comply with a maintenance program; and (4) with respect to transport airplanes, the present FAA Maintenance Review Board (MRB) system is an entirely satisfactory way of establishing the means for maintaining airworthiness. Current FAA practice allows operators of new transport category airplanes to utilize FAA MRB recommendations (reference FAA Advisory Circular No. AC 121-22) for starting their maintenance programs, and then vary them with FAA approval as experience and operating conditions dictate. The commenter points out that, contrary to that practice, the amendment will require the manufacturer to obtain FAA approval of its recommended maintenance procedures before the airplane is type certificated, and to obtain FAA approval of revisions to those procedures (necessitated by any improvement change in the airplane) before approval of the change itself. This, the commenter states, will impose a severe and unnecessary hardship on the manufacturer.

On the first and second points, although the operator/owner does have responsibility for continued airworthiness, the FAA has found that the recommended maintenance procedures made available under current regulations are frequently inadequate in scope and content, and often do not provide a sound basis for the operator/owner to maintain the airworthiness of the aircraft. The FAA has concluded that the lack of such recommended maintenance procedures can best be remedied by requiring that they be made available to owners and operators by the type certificate or supplemental type certificate holder. On the third point, while it is true that not all operators/owners are required to establish and comply with a continuous airworthiness program, those that voluntarily wish to set up such a program are often handicapped by the lack of comprehensive instructions, which would be remedied by § 21.50(b). On the other hand, those required to establish a program will benefit from the more detailed and comprehensive instructions made available to them under § 21.50(b). On the fourth point, which is directed toward aircraft that will be maintained in accordance with an FAA approved operations specification and maintenance program under Parts 121, 123, 127, 135, or an approved inspection program under § 91.217(e), the FAA recognizes that these procedures for maintaining airworthiness of the products have functioned satisfactorily. In this regard, the FAA expects that operating segments of the air transportation industry would continue to work with type certification applicants in defining adequate maintenance instructions prior to type certification. The FAA MRB document, which is a product of contributions made by both the operators and manufacturer, could be picked up by the type design holder and included as a part of the required Instructions for Continued Airworthiness, thus continuing the usefulness of the existing MRB practices for the original entry into service of new product designs. Likewise, the additional maintenance instructions that would be required and which are not typical to MRB documents, but are presently required in air carrier operators' FAA approved maintenance programs, could also be picked up by the type design holder. Therefore, the screening process that would be utilized by the FAA in reviewing such maintenance documents would not unnecessarily delay type certification or approval of design changes after certification. See also the discussion under Proposal 8-3.

A commenter questions the need for the provision in § 21.50(b) requiring that the Airworthiness Limitations section of the Instructions for Continued Airworthiness be furnished with each aircraft, engine, or propeller. The FAA agrees that this provision is unnecessary, as the type certificate holder must make the manual available, and the operator/owner must comply. To require a manual to be furnished with each equipment would be redundant, and in some instances, would be unnecessary. Accordingly, the requirement that the Airworthiness Limitations section be furnished with each airplane or product is revised to require that the section be furnished to each owner of the type.

A commenter objects to § 21.50(b) insofar as it applies to rotorcraft type certificated under Parts 27 and 29, contending that the manufacturer is already required under those parts to furnish a maintenance manual, which has allegedly been proven adequate. The FAA does not agree. The proposed Instructions for Continued Airworthiness, which are broader in scope and more detailed than the maintenance manual currently required under Parts 27 and 29, would provide the operator/owner with the minimum amount of information needed to maintain the airworthiness of increasingly complex rotorcraft currently being designed.

A commenter suggests that § 21.50(b) be revised to make it clear that an aircraft manufacturer need not supply Instructions for Continued Airworthiness pertaining to engines and propellers until the complete aircraft is delivered to the first retail purchaser. The continued airworthiness instructions for propellers and engines should be provided to the aircraft manufacturer to facilitate transmittal to purchasers of the aircraft.

A commenter notes that § 21.50(b) would require an aircraft manufacturer to make the Instructions for Continued Airworthiness available to the owner upon delivery of the aircraft and to any other person required to comply with any of the terms of those instructions *upon request.* Since such a request could be made before the first aircraft delivery, it could impose an unnecessary burden on the aircraft manufacturer. The commenter suggests that § 21.50(b) be revised so that such a request need not be filled until after delivery of an aircraft to the first owner. The FAA agrees that an early request for the Instructions for Continued Airworthiness could impose an unnecessary burden on the manufacturer. Additionally, the FAA notes that airplanes can be delivered to an operator, prior to full type certification, with a provisional airworthiness certificate to allow activities such as crew training, and therefore prior to the approval of the Airworthiness Limitations section. Accordingly, the phrase "upon request" has been deleted from § 21.50(b) and the language has been revised to require that at least one set of the complete Instructions for Continued Airworthiness be furnished upon delivery to the customer, or subsequent to issuance of the first standard certificate of airworthiness, whichever occurs later.

Proposal 8-6. Commenters object to the proposal to make § 21.97(b) applicable to all products rather than to engines only because—(1) the volume of paperwork would increase out of proportion to any benefits that might be gained; (2) the applications for supplemental type certificates would be significantly more complex, since there are frequently many configuration variations within an aircraft model and a fleet operator would have to list all of the configurations or make separate application for each; and (3) the term "specific configuration" must be defined if the proposal is to be properly administered. In light of these comments and after further consideration, the FAA concludes that this proposal requires additional study and it is withdrawn.

Proposal 8-7. No unfavorable comment was received on the proposal to amend § 21.123 to require a manufacturer to submit a manual describing its production inspection system and means for controlling materials and parts. Accordingly, the proposal is adopted without substantive change.

Proposal 8-8. A commenter objects to § 21.143(a) (2) contending that substitution of the word "supplier" for "subsidiary" introduces a major change to the requirements, involving increased paperwork and costs. The FAA does not agree. The FAA has consistently administered § 21.143(a) (2) as applying to *all* raw materials, purchased items, parts, and assemblies supplied to the prime manufacturer. The change does not involve increased paperwork or costs because it is a semantic change which clarifies the definition of persons or entities subject to the quality control data requirements of § 21.143, without expanding any of those requirements. The use of the term "subsidiary" is unclear because it implies that there must be a corporate connection between the prime manufacturer and his supplier. Accordingly, the language has been revised to reflect the FAA's intent that the quality control data requirements of § 21.143(a) (2) apply to all "suppliers" of each prime manufacturer. For similar reasons and for internal consistency, § 21.143(b) is revised to replace the term "subsidiary manufacturers" with the term "suppliers".

Proposal 8-9. No unfavorable comment was received on the proposal to amend § 21.182 to ensure that the proposed new § 45.11(c) is cross referenced. Accordingly, the proposal is adopted without substantive change.

Proposal 8-10. A commenter raises the question whether a special flight permit issued under § 21.197(a) (3) would serve as a certificate of airworthiness for international flights. The FAA notes that international flights cannot be conducted under special flight permits issued under § 21.197 unless specifically authorized by the foreign authorities concerned.

Another commenter objects to § 21.197(a) (3) (ii) because as worded, the individual aircraft would have to be flown for at least 50 hours, thereby defeating the purpose of the original proposal (as submitted for the Airworthiness Review) which aimed at eliminating unnecessary delays in obtaining FAA approval of customer demonstration flights. The commenter suggests that this provision be changed to stipulate that the aircraft type must have been flown for at least 50 hours. The FAA agrees that since the proposal concerns aircraft manufactured under a production certificate, and since the aircraft type could have been flown for at least 50 hours during the type certification program, the 50 hours of flight provision is not necessary. However, the FAA does not agree with the commenter's suggested revision. It is necessary to require that production flight tests for the individual aircraft involved be satisfactorily completed before that aircraft is flown on customer demonstration flights. Accordingly, § 21.197(a) (5) is added to prescribe this condition in place of the 50 hours of flight provision.

The same commenter also suggests that § 21.197(a) (3) (ii) should be made applicable to aircraft produced under a type certificate only, since such aircraft received close production surveillance by the FAA. The FAA agrees that a production certificate should not be the limiting factor in obtaining FAA approval of customer demonstration flights. If the aircraft has been demonstrated to otherwise meet all the safety requirements for a standard airworthiness certificate, then customer demonstration flights could be permitted. This proposal is adopted by the addition of § 21.197(a) (5).

In addition, the commenter suggests that proposed § 21.197(a) (3) (ii) be amended with a reference to the maintenance and inspection programs called for under § 21.195 for Experimental and Subpart C Provisional Type Certificates. Such procedures would unnecessarily complicate the issuance of permits for customer demonstration flights and would in effect nullify the original proposal. The portion of the proposal calling for maintenance and inspection programs in these instances is therefore withdrawn.

Proposal 8-11. No unfavorable comments were received on the proposal to amend § 23.253(b) (3) to ensure that high speed buffeting does not become severe enough to prevent the pilot from reading the instruments or controlling the airplane. Accordingly, the proposal is adopted without substantive change. Also see Proposal 8-28.

Proposal 8-12. No unfavorable comments were received on the proposal to amend § 23.361 to redefine the limit engine torque load conditions to be considered for turbine engine installations and to make other clarifying changes. Accordingly, the proposal is adopted without substantive change.

Proposal 8-13. The FAA does not agree with a commenter who suggests that the lead-in of § 23.371 be revised to make the gyroscopic load requirements applicable to piston as well as turbine engines. The FAA has no information to indicate a need for coverage of piston engines in this regulation, nor was any submitted by the commenter.

Another commenter concurs with § 23.371, assuming that a rational analysis of loads under § 23.371(a) is an alternate to the loads specified in § 23.371(b). This assumption is correct. No change to § 23.371 was proposed in this regard. Section 23.371 is adopted without substantive change.

Proposal 8-14. A commenter suggests that the word "operated" in § 23.729(c) be replaced by the word "lowered". The commenter states that the intent of the rule is to ensure that the gear can be lowered in an emergency. The FAA concurs, but the word "extended" is used to preserve the internal consistency of the section. Section 23.729(c) is revised accordingly.

This commenter also questions whether § 23.729(e) would require an "up lock". The commenter is evidently referring to a "lock" in the sense of a positive means other than hydraulic pressure, as required to keep the gear extended by § 23.729(b). Section 23.729(e) contains no such requirement.

Another commenter suggests that the second sentence of § 23.729(e) be revised to add the words "and secured" after the words "fully extended" and "fully retracted" in order to clarify what functions the lights would indicate to the pilot. The first sentence of the paragraph clearly states that the indicators should inform the pilot that the gear is secured in the extended or retracted position.

A commenter states that the proposal is redundant since the requirement is already in effect. The FAA does not agree. This is one of several new provisions being incorporated into the current regulations to assure the reliability of small land-plane landing gear systems.

After further review, the FAA has determined that the words "and warning device" should be removed from the heading of § 23.729(e) to preclude confusion between the requirements of this paragraph and those of § 23.729(f). Section 23.729 is adopted with editorial changes and the revisions discussed.

Proposal 8-15. A commenter objects to § 23.903(f) on the grounds that it imposes new and unjustified criteria for restart capability of reciprocating engine powered airplanes. The FAA believes the requirement to be fully justified. Accidents have occurred with multiengine reciprocating powered, as well as turbine powered airplanes because pilots have not been adequately apprised of the engine restart envelope for their airplane. Therefore, the requirement must apply to both types of engine installations.

This commenter further states that § 23.903(g) is acceptable provided that the "restart requirement is understood to be within the restart envelope for the aircraft (if one is approved for the aircraft)." Present § 23.903(e) (3), as applicable to turbine engine powered small airplanes, states that it must be possible to restart an engine in flight, and § 23.903(f) requires that an approved restart envelope be established. Therefore, development of a restart envelope would be required for the approval of each turbine engine powered small airplane. As adopted, § 23.903(g) requires that, following in-flight shutdown of all engines, electrical power for ignition exists throughout the approved restart envelope.

Another commenter states that it seems inconsistent to require that electrical power be provided for ignition but not for rotational capability sufficient for an engine start. The FAA does not agree. As adopted, the rule provides for those circumstances where engine windmilling speed is sufficient for restarting but insufficient to provide electrical power for ignition.

The proposal is adopted without substantive change. However, § 23.903(f) is revised to make it clear that the specified in-flight engine restart capability is required throughout the required altitude and airspeed envelope.

Proposal 8-16. No unfavorable comment was received on adding a new § 23.905(d) referencing propeller blade pitch control system durability requirements. Accordingly, § 23.905(d) is adopted without substantive change. For discussion of a related proposal to add a new § 35.42, see the discussion under Proposal 8-103.

Proposal 8-17. A commenter suggests that since the requirement for fuel tanks to retain fuel during a landing with landing gear retracted or collapsed may be subject to individual interpretation, advisory material on compliance methods should be reviewed with industry prior to implementation of the rule. The FAA does not agree. The revision merely clarifies an existing requirement. Section 23.967 is adopted without substantive change.

Proposal 8-18. A commenter recommends that the proposal to add a new § 23.991(d) which requires that operation of any fuel pump does not adversely affect continuous engine operation, be withdrawn or its adoption delayed while the compatibility of engine and airplane fuel systems is studied. The compatibility between these systems must be established in the design process, and the relevant design considerations are well known. Delaying the requirement in favor of additional study is not warranted.

Another commenter contends that the requirement is beyond the needs of safety. The FAA agrees that the proposed requirement is too restrictive and § 23.991(d) is revised to provide that the operation of any fuel pump may not affect engine operation so as to create a hazard.

Two commenters disagree with adding a new § 23.991(d), contending that it eliminates present fuel system designs. The FAA has no information to suggest that compliance with the revised section, as discussed above, would be impossible using present fuel system designs, nor was any presented by the commenter.

The proposal is adopted with the revision discussed above.

Proposal 8-19. No unfavorable comments were received on the proposal to amend § 23.1305(n) to permit movement of the propeller blade up to 8° below the flight low pitch position before an indication of the movement is required for the flight crew. Accordingly, the proposal is adopted without substantive change.

Proposal 8-20. For comments related to withdrawal of the proposal to revise § 23.1521(a), see Proposal 8-94.

Proposal 8-21. Since the proposal for § 23.1529 is substantively identical to those for §§ 25.1529 (Proposal 8-58), 27.1529 (Proposal 8-64), and 29.1529 (Proposal 8-77), all comments on these proposals are considered here.

A commenter notes that although the explanation for § 23.1529 makes it clear that the Instructions for Continued Airworthiness need not be finalized until delivery of the first airplane, the proposal itself seems to require that they be finalized before type certification. The commenter suggests that this point be clarified. The FAA agrees, and §§ 23.1529, 25.1529, 27.1529, 29.1529, 31.82, 33.4, and 35.4, are revised accordingly.

In response to a commenter representing a group of scheduled air carriers, the FAA notes that, except for the Airworthiness Limitations section, there is no requirement that any operator/owner use the Instructions for Continued Airworthiness referred to in §§ 23.1529, 25.1529, 27.1529 and 29.1529. Moreover, the new §§ 43.13(a), 43.16, and 91.163(c) allow the use of other methods. In particular, the use of maintenance manuals and continuous airworthiness maintenance programs developed under current Parts 121, 123, 127, and 135, or an inspection program approved under current § 91.217(e), would be acceptable alternatives to the Airworthiness Limitations section. This commenter suggests that language be added to § 25.1529 to make it clear that alternatives to the Instructions for Continued Airworthiness (except the Airworthiness Limitations section) may be used. This suggestion was not adopted because §§ 43.16 and 91.163(c) make this provision sufficiently clear.

Proposal 8-22, 8-23, and 8-24. Final action on Proposals 8-22, 8-23, and 8-24 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; Oct. 30, 1978).

Proposal 8-25. The proposals to add an appendix to Parts 23, 25, 27, and 29 (Proposals 8-62, 8-67, and 8-80) setting forth Instructions for Continued Airworthiness are substantively identical and are discussed below. Unless otherwise stated, the discussion refers to the designated sections in each of the appendices mentioned above.

§ *XX.1(a).* A commenter objects to the concept of specifying requirements (as opposed to providing guidance) for the preparation of Instructions for Continued Airworthiness, contending that such requirements would lead to time-consuming negotiations between the manufacturer and the FAA, and that some flexibility in providing the instructions is necessary. The appendix sets forth, in broad objective terms, the *kinds* of information the Instructions for Continued Airworthiness must contain. Within this framework, the manufacturer would be free to develop detailed instructions appropriate to its aircraft. The FAA is confident that the appendix provides a reasonable measure of flexibility, and anticipates no difficulties or delays in determining the acceptability of the Instructions developed by the manufacturer.

§ *XX.1(b).* A commenter objects to the requirement that Instructions for Continued Airworthiness be provided for appliances, contending that—(1) this information is often not available from the appliance manufacturer; (2) even when available, the information sometimes has to be revised for the particular application in a manner not approved or intended by the appliance manufacturer; and (3) the information necessary for customized equipment installations would be unreasonably costly to develop. The FAA does not agree. Such information, which is essential to the continued airworthiness of the aircraft, should be provided for each required product. Accordingly, the language of § XX.1(b) is revised to make it clear that if the aircraft manufacturer does not supply continued airworthiness instructions for the product, the Instructions for Continued Airworthiness for the aircraft must include this information. See also the discussion under § XX.3(a) (5) (i).

A commenter objects to the proposal to include information on engines and all appliances in the Instructions for Continued Airworthiness, contending that—(1) such information should be furnished by the engine or appliance manufacturer; and (2) with respect to appliances, only those for which standards have been established by FAA should be covered. On the first point, manufacturers of new engine designs are required to supply the information for their products under new § 33.4. Manufacturers of new aircraft using currently certificated engines are required by § XX.1(b) to provide the information for the engine in their Instructions for Continued Airworthiness for the aircraft. In practice, the FAA expects this information to be developed and supplied by the engine manufacturer. A similar requirement for appliances would be administratively impracticable because of the large number involved. On the second point, it should be noted that specific performance and safety standards have not been established for all essential appliances. However, upon further review, the FAA concludes that it would be unreasonable to require the aircraft manufacturer to cover appliances other than those required in applicable regulations. Accordingly, § XX.1(b), as adopted, refers only to appliances "required by this chapter."

§ *XX.2.* A commenter suggests a revision of this section to make clear that the Instructions for Continued Airworthiness may consist of a series of volumes, or may be supplied in other than book form, such as on microfilm or microfiche. The language in § XX.2 is sufficiently broad to cover these acceptable alternatives. Reference to the Air Transportation Association of America Specification No. 100 (where it appeared) is deleted from § XX.2(b) because it is nonregulatory.

§ *XX.3, lead-in paragraph.* A commenter objects to the requirement that the contents of the manual "be prepared to be understood by the persons who will be responsible for maintaining" the aircraft or product, contending that—(1) it would impose a subjective standard that would be impossible to meet; and (2) it could be interpreted to mean that, in some circumstances, manuals for aircraft to be exported must be prepared in the language of the country of export. In light of these comments, the first sentence of the lead-in paragraph of § XX.3, is revised to read as follows: "The contents of the manual or manuals must be prepared in the English language." This conveys the intent of the original proposal. A commenter points out that there may be different levels of maintenance instructions, directed at different classes of operators. For example, the maintenance instructions provided to a fleet operator or commuter airline may be more comprehensive than those provided to a fixed base operator. Any level of maintenance instructions considered appropriate by the manufacturer may be submitted, provided that those instructions comply with the minimum standards in the appendix.

§ *XX.3(a) (2).* A commenter recommends that the requirement for complete descriptions be limited in scope to the "standard" aircraft and "quantity-installed" optional equipment, contending that it would be virtually impossible to devise "custom" maintenance manuals for each product because of the many combinations of equipment that may be ordered by the purchaser. In addition, the commenter states that a manual containing all of these combinations would be difficult to use. The FAA does not agree. To achieve its purpose, the Instructions for Continued Airworthiness must contain information on each item of equipment required by regulation to be installed on the aircraft. The FAA notes that supplemental type certificates (STC's) are required for installation of equipment not a part of the type certificate, and that this maintenance manual requirement is equally applicable to the STC applicant.

§ XX.3(a) (3). A commenter recommends that since maintenance personnel have no need for the kind of operating information provided in a Pilot's Operating Handbook, the paragraph be revised to require only *basic* principles of equipment control and operation. The FAA agrees, and § XX.3(a) (3) now refers to "basic control and operation information."

§ XX.3(a) (5) (i). A commenter recommends that applicants be allowed to refer to a component manufacturer as a source of information instead of including the information in the Instructions for Continued Airworthiness. The commenter argues that many component manufacturers prefer to maintain control of their maintenance information to ensure that it is up to date. In other cases, maintenance at the factory may be required because of the complexity of the equipment. The FAA recognizes that some accessories, instruments, and equipment have an exceptionally high degree of complexity, requiring specialized maintenance techniques, test equipment, or expertise. In such cases, it would be in the interest of safety to allow the applicant to refer to the appropriate manufacturer in the maintenance instructions. The FAA does not agree, however, that such reference should be allowed in other circumstances. Section XX.3(a) (5) (i) (redesignated § XX.3(b) (1)) is revised accordingly.

A commenter recommends that the last sentence of § XX.3(a) (5) (i), be revised to allow reference to a separate inspection program, rather than include it in the maintenance instructions, so that the inspection program could be better kept current and also tailored to an individual operator's needs. The FAA does not agree. The inspection program must be set forth in the Instructions for Continued Airworthiness to ensure its availability to those who will benefit from it.

The FAA, after further study of § XX.3(a) (5) (i), has decided that the provision should specifically require a description of applicable maintenance or wear tolerances. Section XX.3(a) (5) (i) (redesignated § XX.3(b) (1)) is clarified in this regard.

§ XX.3(a) (5) (ii). A commenter objects to the words "could occur" in this paragraph because it encompasses everything within the realm of possibility, thereby unnecessarily increasing the volume of the maintenance instructions. The phrase "probable malfunctions" replaces the phrase "typical malfunctions that could occur" in § XX.3(a) (5) (ii) (redesignated § XX.3(b) (2)).

§ XX.3(a) (5) (iii). A commenter suggests that this paragraph would be clearer if the first three words and the last five words are deleted. Section XX.3(a) (5) (iii) (redesignated § XX.3(b) (3)) is revised accordingly.

§ XX.3(a) (5) (iv). A commenter suggests revision of this paragraph to make it clear that the overweight landing check refers to the condition in which a certificated landing weight is lower than certificated takeoff weight, since the aircraft manufacturer cannot speculate what damage might be done to an aircraft that takes off and must immediately land at a weight near the certificated takeoff weight. This comment may have merit for certain aircraft. Moreover, since an overweight landing is but one of several occurrences which would necessitate a check to determine aircraft damage, to single out one occurrence would imply that the others need not be covered in the maintenance instructions. Accordingly, the words "checks after an overweight landing" are deleted from § XX.3(a) (5) (iv) (redesignated § XX.3(b) (4)).

§ XX.3(b). A commenter recommends deletion of the requirement for an overhaul manual or section, contending that—(1) there are many products that, for safety reasons, should not to be overhauled; and (2) the manufacturer must make the technical assessment as to whether a product can be safely overhauled. In the light of these comments, and after further consideration, the FAA finds that those portions of § XX.3(b) that provide for overhaul information only (except for engines), should not be required in the Instructions for Continued Airworthiness. Accordingly, §§ XX.3(b) (1) (i), XX.3(b) (1) (ii),

XX.3(b) (1) (iv), XX.3(b) (1) (viii), and XX.3(b) (3), are withdrawn. The other provisions of § XX.3(b) specify information that is needed for purposes other than overhaul.

§ *XX.3(b) (1) (iii)*. No adverse comment was received on this proposal to require structural access plate information. Accordingly, it is adopted as proposed, but redesignated § XX.3(c).

§ *XX.3(b) (1) (v)*. No adverse comment was received on this proposal to require instructions on special inspection techniques. Accordingly, it is adopted as proposed, but redesignated § XX.3(d).

§ *XX.3(b) (1) (vi)*. A commenter points out that no part can be restored to its original condition by protective coatings or treatments. The FAA agrees, and § XX.3(b) (1) (vi) (redesignated § XX.3(e)) is revised to make this clear and to require only the information necessary to apply protective treatments to the structure after inspection.

§ *XX.3(b) (1) (vii)*. No adverse comment was received on this proposal to require data on structural fasteners. Accordingly, it is adopted as proposed, but redesignated § XX.3(f).

§ *XX.3(b) (1) (ix)*. No adverse comment was received on the proposal to require a list of special tools. Accordingly, it is adopted as proposed, but redesignated § XX.3(g).

§ *XX.3(c)*. Three commenters object to the concept of supplying generalized repair data. One contended that—(1) the nature of the damage may not be known in a particular case, though it may appear to fall under a general repair "fix"; (2) the safety of the product may be seriously impaired by repairs made in such instances; and (3) the manufacturer can provide alternate means for a mechanic to obtain repair data. In the light of these comments, the FAA agrees that it is not necessary to include the repair information in the Instructions for Continued Airworthiness as proposed. Accordingly, proposed § XX.3(c) is withdrawn.

§ *XX.4*. A commenter suggests that the manufacturer should be allowed to list items in the Airworthiness Limitations section that it deems necessary to maintain structural integrity, where such items are not called out in the applicable airworthiness standards. Another commenter, representing the scheduled airlines, objects to the inclusion, in the Airworthiness Limitations section, of mandatory replacement times for parts other than life-limited parts and of mandatory inspection intervals. The resolution of these comments is discussed under Proposal 8-3. The language proposed for the Airworthiness Limitations sections of the appendices to Parts 23, 25, 27, and 29 is being retained, except that the mandatory replacement times, mandatory inspection intervals, and related procedures are specified as those associated with structural integrity—including those approved under current § XX.571. It also is made clear that FAA approved alternative programs may be used. To avoid unnecessary restriction being placed on operation, only these items are listed in the pertinent Airworthiness Limitations section. Other items can of course be listed in other sections of the Instructions for Continued Airworthiness.

Proposal 8-26. The addition of new §§ 25.101(i) and (j) would set forth requirements for automatic systems that affect performance, including automatic takeoff thrust control systems (ATTCS). In view of the evolving technology of automatic systems, the special features and functions of each design, and the complex interrelationships with other systems, the FAA has concluded that specific regulations are premature and that safety considerations can be more advantageously addressed in special conditions for specific systems. Accordingly, Proposal 8-26 and related Proposals 8-34, 8-48, and the § 25.1305(c) (9) portion of 8-50 are withdrawn.

Proposal 8-27. The revision of § 25.111(c) (4) will permit changes in power or thrust by an automatic takeoff thrust system but prohibit any change requiring action by the pilot when determining the takeoff path. Although specific proposals relating to criteria for automatic takeoff thrust systems have been withdrawn, the FAA believes that this proposal should be retained as it standardizes the procedure for determining the takeoff path, and is consistent with current practice.

8

One commenter implies that this rule change will add the task of monitoring conditions and instruments and thereby increase the pilot workload. Other commenters suggest that a limited provision for manual throttle setting be included, or are opposed to the proposal completely on the grounds that safety will be compromised in service. Since the rule will apply in the context of a determination of performance rather than an operating requirement, the proposal is adopted without change.

Proposal 8-28. A commenter suggests that the term "impair" in § 25.253(a) (2) (iii) be changed to "significantly impair". The FAA does not agree. In present high altitude, high Mach number jet airplanes, any recovery from upset or speed anomaly must be done essentially by reference to flight instruments. Therefore, any buffet or vibration condition which would in any way impair the pilot's ability to accurately interpret instrument information cannot be tolerated. The same commenter stated that some interpretative material on vibrational frequencies and levels of acceleration would be useful. Use of interpretative material would divert attention from the primary consideration, impairment of pilot ability, which is qualitative. Proposed § 25.253(a) (2) (iii) is adopted without substantive change.

Proposal 7-17. Although no unfavorable comment was received on the proposal to amend § 25.305(d), two commenters state that their agreement was with the understanding that both the discrete gust and the continuous turbulence analyses are required. Present § 25.341(a) requires that limit load factors be established by reference to a discrete gust encounter. Present § 25.305(d) specifies that the dynamic response of the airplane to vertical and lateral continuous turbulence must be taken into account. Both analyses are required.

Two commenters recommend that present § 25.341 be amended to require dynamic loads analysis by reference to discrete gusts having varying gust gradient distances. The FAA does not agree. The combination of discrete gust analysis under § 25.341 and continuous turbulence analysis under § 25.305 is less complex than the method described by these commenters and provides sufficient substantiation of strength. The proposal is adopted without substantive changes.

Proposal 8-29. Many negative comments were received on the proposal to revise § 25.307(a) to require ultimate load tests for each normal and fail-safe critical load condition. Three commenters indicate that the proposed regulation would add to the cost and time required for certification although present airplane safety records do not support the need for a change. One commenter points out that the design philosophy used for commercial transports, due to the dominant influence of the economic requirement for long life without structural fatigue problems, often produces reserve margins of safety. Another commenter proposes that ultimate load tests be limited to structures such as composites, which substantially differ from conventional structure. The FAA agrees that to conduct ultimate load tests for all critical load conditions would greatly increase the amount of testing required, which is not warranted by the safety record since there have been no service features which indicate that present methods of substantiation are inadequate. In many cases failures in service result from conditions such as fatigue or corrosion which are not covered by ultimate load tests. The proposal to require ultimate testing of all structural components therefore is deleted. In some cases, however, analysis must be supplemented by limit and/or ultimate load tests. The amendment, as adopted, is revised accordingly.

Proposal 8-30. Several negative comments were received on §§ 25.365(e) and (f), requiring airplane designers to consider pressure vessel decompression resulting from the loss of any nonplug door, detonation of a bomb within the cabin at all probable locations, and engine disintegration. Several commenters oppose designing for the loss of a nonplug door, stating that there is no reason why nonplug doors cannot be designed to be as safe as plug doors. These commenters suggest that the door design criteria be upgraded to improve door integrity. The FAA agrees that door integrity should be improved to the extent that design for their loss is not justified. Therefore § 25.783 is revised in response to Proposal 8-35 to require this improved level and § 25.365(e) (1) is withdrawn.

Many commenters object to designing for all possible bomb detonations and probable bomb locations. A commenter points out that airworthiness requirements in the past have attempted to safeguard aircraft against structural and mechanical failure, human error, natural hazards, etc. They note that no one has attempted to incorporate into airworthiness requirements the consequences of homicidal or suicidal tendencies. Another commenter states that the aircraft industry has to accept responsibility for compensating the public for loss or injuries resulting from defects in its products, and the inclusion of a bomb damage requirement in Part 25 could significantly extend the grounds of possible product liability actions, particularly with the imprecise requirements of § 25.365(e). Many commenters state that the wording of § 25.365(e)(3) is so vague as to make its implementation impossible. The FAA notes that, ultimately, minimizing the loss of airplanes as a result of bomb explosions is a ground security problem.

A commenter suggests an alternative to § 25.365(e)(3) which would establish a relationship between the design maximum opening and the cross-sectional area of the pressurized shell. The FAA agrees that the proposed relationship provides an acceptable method for determining hole size. The FAA has determined that the maximum hole size required should be 20 square feet, a value contained in Airworthiness Directive 75-15-05 (August 11, 1975) pertaining to openings in wide-body transports. Section 25.365(e)(3) is revised to allow the maximum opening to vary as a function of the cross-sectional area of the pressurized shell to account for the differences in size between narrow and wide-body transports and is redesignated and adopted as § 25.365(e)(2).

The FAA finds that the maximum opening specified in adopted § 25.365(e)(2) will exceed the opening that would result from causes other than bomb explosions or engine disintegration, and that a probability safety analysis to determine hole size in passenger or cargo areas resulting from other causes is not needed. Thus, proposed § 25.365(f) is withdrawn.

In light of the comments received on proposed § 25.365(e)(4), and after further consideration, the FAA concludes that openings caused by airplane or equipment failure can occur in any compartment, and that partitions, bulkheads, and floors should be designed for openings from these causes. Thus, proposed § 25.365(e)(4) is revised accordingly, redesignated, and adopted as § 25.365(e)(3).

No adverse comments were received on proposed § 25.365(e)(2) to require design to withstand penetration of the cabin by a portion of an engine following engine disintegration and the proposal is redesignated § 25.365(e)(1) and adopted without substantive change.

Amendment to § 25.571(a)(3). Because of the change to § 25.1529 adopted in this amendment, the reference to the "maintenance manual" in § 25.571(a)(3) is no longer appropriate. For consistency, § 25.571(a)(3) references the Airworthiness Limitations section of the Instructions for Continued Airworthiness.

Proposal 8-31. Numerous unfavorable comments were received on the proposal to add a new § 25.633 requiring that essential systems be designed to minimize damage caused by detonation of a bomb in the airplane. Most commenters contend that there is no means to protect essential systems from all possible bomb detonations and that bomb size and location cannot be rationally defined. Several commenters indicate that the separation of essential systems on modern airplanes presently provides a measure of protection and that the proposed requirements of § 25.633 are beyond the state of the art.

The FAA agrees that a rational means of determining and defining all possible bomb size/location combinations which would damage essential systems does not exist. Therefore, the proposal is withdrawn.

Proposal 8-32. Several commenters object to the proposed horizontal stabilizer "trim-in-motion" aural warning requirement of § 25.677(e) on the grounds that the aural environment in today's cockpits is already cluttered and that finding new and distinctive aural warnings is becoming difficult. They further suggest that small increments of trim change should not cause aural warning, and that warnings should be given only when a safety-of-flight hazard exists. One commenter suggests that there is no need for separate aural warning on aircraft having direct trim control wheels in the cockpit.

The FAA agrees with the comments and upon further review concludes that the proposal is premature and unworkable. Accordingly, it is withdrawn for further study.

Proposal 8-33. Several adverse and supporting comments were received on the proposal to add a new § 25.685(e) requiring arrangement of control systems to provide an airplane with the capability of continued safe flight and landing in the event of an inflight localized structural failure. Several commenters agree with the intent of the proposal and propose minor changes. One commenter agrees with the intent of the proposal, but believes that only failures which have not been shown to be extremely improbable need be considered. Commenters state that the intent of the proposed rule change is already encompassed by § 25.365(e) which would require that floor failure resulting from rapid decompression be shown to be extremely improbable.

A commenter further states that present § 25.671(c) requires control systems to be designed to be tolerant of failures, and that control system damage is more likely from other sources. The commenter claims that service experience and rational analysis show that the floor structure provides the best available protection for the control system from damage from these other sources.

After further study the FAA agrees with the commenters that the primary objectives of this proposal are adequately covered by several existing sections of FAR 25. For example: § 25.365(e) requires that the floor be designed for pressure vessel opening which is a function of the cross-sectional area of the fuselage; § 25.571 requires all structure to be damage tolerant where practical; § 25.671 requires that control systems be tolerant of failures, including exterior damage; § 25.629 requires freedom from flutter under failure conditions; § 25.631 requires protection of controls in the empennage structure from bird strikes; and § 25.901(d) requires design precautions be taken to minimize the hazards to the airplane, including control systems, in the event of an engine rotor failure. The proposal therefore is withdrawn.

Proposal 8-34. For an explanation of the withdrawal of the proposals concerning automatic systems that affect airplane performance, one of which is the proposal to add a new § 25.705, see Proposal 8-26.

Proposal 8-35 and 2-59. Several commenters object to the requirement in § 25.783(e) that provisions for the inspection of door locking mechanisms must be discernable under all possible lighting conditions. The commenters state that allowance should be made for use of supplemental lighting such as a flashlight to aid in the inspection. The FAA agrees and the section is revised accordingly.

A commenter states that direct visual inspection is only needed for external doors for which the initial opening movement is not inward and which are pressurized or for which an inadvertent opening could prevent continued safe flight and landing. Although these comments have merit, they go beyond the scope of Proposal 8-35 and interested parties have not had an opportunity to comment on these changes. No change to the section is being made based on these comments. Several commenters object to the redundancy of a dual warning system requirement and state that in lieu of redundancy, a reliability level should be specified. Further comments state that all external doors do not require this level of reliability. The FAA agrees that this reliability level could be specified and should apply only to external doors for which initial movement is not inward, and the section is changed accordingly. The present language defining where door warning systems are required is retained, as no change in present practice is intended.

A commenter suggests that § 25.783(e) should specify several good design practices. These design practices are desirable but are not essential, since the necessary level of safety can be obtained by alternate means under § 25.783.

Several commenters object to new § 25.783(f), suggesting that it apply only to nonplug type doors and doors whose loss would present a probable hazard. The FAA agrees that provisions to prevent unsafe pressurization can be limited to doors whose loss would present a probable hazard. However, the FAA does not agree that it should be limited to nonplug type doors because a plug door is defined as one whose initial opening is inward and this feature does not necessarily provide complete assurance that an unsafe pressurization will not occur with subsequent opening of the door in flight. The clarifying phrase "to an unsafe level" has been added to § 25.783(f). The intent is to prevent pressurization to a level which would be hazardous if an unlocked external door inadvertently opened.

Several commenters object to proposed new § 25.783(g) (Proposal 8-35), stating that it would unnecessarily preclude the use of nonplug type doors above 45,000 ft. The FAA agrees that nonplug type doors can safely be used at altitudes above 45,000 ft., since adequate warning systems and door integrity are provided by § 25.783(e). Proposed new § 25.783(g) is withdrawn.

A commenter proposes that for the door whose opening would be a hazard, the door and immediate surrounding fuselage, door mechanisms, and warning system be designed for any combination of failures (including improper operation) not shown to be extremely improbable. The FAA agrees. In place of the proposals in 8-30, with regard to §§ 25.365(e) (1), (3), and (4), a rule is included to require determination by safety analysis that inadvertent opening of doors which could prevent continued safe flight and landing is extremely improbable.

Two commenters state that the criteria for passenger egress in the revision to the second sentence of § 25.783(g) (Proposal 2-59 of Notice 75-10) should be evacuation time, and not the rate of passenger egress through a given exit. The FAA agrees. Revision of the second sentence of § 25.783(g) is redesignated as § 25.783(i) and the reference to § 25.561(a) (3) in the proposal is corrected to reference § 25.561(b) (3).

Numerous negative comments concern proposed new § 25.783(j), which requires that lavatory doors open into the cabin to preclude anyone from being trapped in the lavatory. The commenters state that this requirement is overly restrictive on design and that an outward opening door could have an adverse effect on aisle width and emergency evacuation capabilities if such a door jammed open. The FAA agrees that inward opening doors can be designed to prevent anyone being trapped in a lavatory in cases of incapacitation or for other reasons. Thus, new § 25.783(j) is revised to delete the requirement that lavatory doors open into the cabin.

Proposals 8-36, 2-60, and 8-37. Final action on Proposals 8-36, 2-60, and 8-37 was taken in Airworthiness Review Program, Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Proposal 8-38. One commenter objects to adding a new § 25.792 to require a sign indicating whether lavatories are occupied, asserting that it would be inappropriate for general aircraft certificated under Part 25. Two commenters doubt that the proposed rule would achieve the objective of preventing aisle congestion near lavatories. They point out that many existing aircraft have similar signs which have not prevented people from "standing in line" for lavatories. Also, passengers can cause congestion in aisles for other reasons. One of the commenters states that lighted signs in a darkened cabin; i.e., during movies or rest periods, would annoy passengers, and that the rule might foster a proliferation of signs throughout the cabin. Finally, one commenter is concerned that any increase in the number of lighted signs might distract the passengers' attention from more essential notices.

Based on the comments and upon further review, the FAA finds that the proposed requirement would not achieve the objective sought. Accordingly, the proposal is withdrawn.

Proposal 8-39. Final action on Proposal 8-39 was taken in Airworthiness Review Program Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Proposal 8-40. Final action on Proposal 8-40 was taken in Operations Review Program Amendment No. 8 (45 FR 41586, June 19, 1980).

Proposal 8-41. A commenter suggests that new § 25.851(a) (5), which replaces current § 25.853(f), be expanded to prescribe four fire extinguishers for a passenger capacity of 100 or more, and to require at least one CO_2, dry chemical, or all purpose fire extinguisher near lavatory and galley areas. These suggested changes are beyond the scope of the notice. However, changes in these requirements are appropriate and the FAA is conducting a research program to establish comprehensive standards and guidance information pertaining to the selection of portable fire extinguishers, taking into consideration types and quantities of extinguisher agents, extinguisher performance, and other factors. Regulatory changes based on the findings of this research program will be proposed in the next airworthiness standards review.

Sections 25.851(a) (5) and (a) (6), which consolidate hand fire extinguisher requirements, are adopted without substantive change.

Proposals 8-42, 2-18, 2-65, 2-114, and 2-160. Final action on Proposals 8-42, 2-18, 2-65, 2-114, and 2-160 was taken in Airworthiness Review Program, Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Proposal 8-43. Final action on Proposal 8-43 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-44. For a discussion of proposed § 25.905(c), see the discussion under Proposal 8-103. The proposal to add a new § 25.905(c) is adopted without substantive change.

Proposals 8-45 and 8-96. The proposed amendments to §§ 25.939 and 33.65 are being deferred for consideration in a forthcoming notice of proposed rule making of the Aircraft Engine Regulatory Review Program.

Proposals 8-46, 3-35, and 8-47. Final action on Proposals 8-46, 3-35, and 8-47 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; Oct. 30, 1978).

Proposal 8-48. For an explanation of the withdrawal of the proposals concerning automatic takeoff thrust control systems, one of which is the proposal to add a new § 25.1143(f), see Proposal 8-26.

Proposals 8-49 and 3-41. Final action on Proposals 8-49 and 3-41 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; Oct. 30, 1978).

Proposal 8-50. For an explanation of withdrawal of the proposals concerning automatic takeoff thrust control systems, one of which is the addition of a new § 25.1305(c) (9), see Proposal 8-26.

One commenter objects to revising § 25.1305(d) (1), stating that significant aerodynamic forces acting on the powerplant nacelle make the direct measurement of thrust impractical. The FAA agrees that such forces may be significant. This commenter further objects to the revision, stating that it is beyond the state of the art to prohibit a parameter from being used if the accuracy of the indication will be adversely affected by any engine malfunction or damage. The FAA agrees that precise values of thrust provided by a malfunctioning, damaged, or deteriorated engine are unnecessary, provided that any changes in thrust due to engine malfunction, damage, or deterioration are indicated to the pilot. The paragraph is revised to require that the indication must be based on the direct measurement of thrust or of parameters that are directly related to thrust.

Although concurring with § 25.1305(d) (1), one commenter states that he would prefer to retain the existing requirements and delete the words ",or to indicate a gas stream pressure that can be related to thrust,". The FAA does not agree. The change suggested by this commenter would eliminate the requirement for thrust information and would retain the requirement for change-of-thrust information only. It also would provide a lower level of safety than the adopted paragraph.

This commenter also states that § 25.1305(d) (1) should be complementary to a similar requirement in Part 33 of this chapter. The FAA does not agree. In current practice, the airframe manufacturer determines how performance should be met. The choice of a means to indicate thrust is negotiated between the airplane manufacturer and the engine manufacturer. The factors which influence the final choice are substantial and may vary among airplane designs. These factors may not be known to the engine manufacturer at the time of engine type certification. Another commenter states that the need for an actual value of thrust is not obvious, whereas indication of a loss of thrust would satisfy the original proposal. The FAA agrees that the actual value of thrust is of little value to the pilot. Section 25.1305(d) (1) is revised to specify that the indicator indicate thrust, or a parameter related to thrust, to the pilot.

Proposal 8-51. No unfavorable comments were received on the proposal to change the reference in § 25.1307(h) for fire extinguishers in connection with Proposal 8-41. Accordingly, the proposal is adopted without substantive change.

Proposal 8-52. Final action on Proposal 8-52 was taken in Airworthiness Review Program, Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Proposal 8-53. Several commenters point out a number of service deficiencies with proposed § 25.1421 which defines the requirements for cargo compartment fire detection systems. They contend that the requirement for the detection system to actuate a warning within one minute of the start of a fire is too restrictive. One commenter cites the results of FAA tests which show average fire detection times to be from 1.75 to 5 minutes. The commenters also suggest that the tests necessary to show compliance with the warning requirements are not clearly defined. Finally, one commenter points out that fires in baggage containers and other enclosed containers can burn for a considerable time before detection is likely by fire detectors in the cargo compartment.

The FAA does not concur that the one-minute requirement is too restrictive. A survey of fire detection technology has indicated that the state of the art permits detection of a fire in less than one minute after inception. In addition, current standards do not define the test procedures necessary to show compliance with warning requirements. The new one-minute requirement is intended to improve the standards in this regard.

The proposal is adopted without substantive change.

NOTE: This proposal has been carried erroneously under § 25.1421 which pertains to megaphones. It will be included in the amendment as a new § 25.858.

Proposal 8-54. Comments received from several commenters reflected confusion over the intent of proposed § 25.1439(c). It was noted that much of what was intended by proposed § 25.1439(c) is included in existing § 25.1439(a) as amended by Amendment 25-38 (41 FR 55454; 12/20/76), provided that the portable oxygen requirements of § 25.1447(c) (4) are retained. Amendment 25-38 emanated from Airworthiness Review Program Notice No. 2 (40 FR 10813; 3/7/75), and was adopted (41 FR 55468; 12/20/76) after publication of Airworthiness Review Program Notice No. 8 (40 FR 29420; 7/11/75) which contained proposals 8-54 and 8-55. The FAA agrees that the existing regulations require much of what was intended by proposal 8-54, provided that proposal 8-55 is withdrawn. The FAA further agrees that additional clarifications are needed before further amendments are made to § 25.1439. Therefore the FAA withdraws both proposals 8-54 and 8-55. The subject of protective breathing equipment will be addressed in a forthcoming notice of proposed rule making.

Proposal 8-55. The proposal to delete § 25.1447(c) (4) is withdrawn for the reasons stated for withdrawal of Proposal 8-54.

Proposal 8-56. For comments related to the proposal to revise § 25.1521(a), and for the withdrawal of that proposal, see Proposal 8-94.

Proposal 8-57. Final action on Proposal 8-57 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-58. For comments related to the proposal to amend § 25.1529, see Proposal 8-21.

Proposal 8-59. A commenter objects to the proposed new § 25.1557(e), calling for a placard on each flight attendant seat to indicate that it may be occupied by a flight attendant, asserting that such placarding is redundant and that a proliferation of placards in the aircraft will only serve to confuse the passengers and make all placards less effective. The commenter also states that the proposal would prohibit non-flight attendant airline personnel who are cognizant of emergency procedures from occupying flight attendant seats when the aircraft is full. The FAA concludes that a new aircraft certification rule is unnecessary to achieve this result and the proposal is withdrawn.

Proposals 8-60 and 8-61. Final action on Proposals 8-60 and 8-61 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 7-55. A commenter recommends that discrete gusts with varying gradient distances be added as a supplement to Appendix G to Part 25. The FAA disagrees because past experience with the use of discrete gusts with varying gust gradient distances has indicated that knowledge with regard to how gust intensity varies with gust gradient distance is not currently available to the designer. The research and development work accomplished in the area of dynamic response to continuous turbulence has indicated that the continuous turbulence criteria of Appendix G to Part 25 is the most rational approach currently available which gives consistent strength levels for airplanes of different characteristics and missions.

A commenter recommends that paragraph (a) of Appendix G be revised to delete the requirement for considering combined stresses based on both vertical and lateral components of turbulence. The commenter states that the current practice of combining root-mean-square stresses (shear, moment, and torsion) resulting from gust calculations involving only purely vertical or lateral components of turbulence is a realistic, practical method for combining stress. The commenter contends that the methods for realistically combining statistical load quantities involving both vertical and lateral components of turbulence have not been satisfactorily developed in the current state of the art. After further review the FAA agrees. Paragraph (a) of Appendix G is revised to delete the requirement for considering the combined stresses resulting from the vertical and lateral components of turbulence.

A commenter recommends that paragraph (b) (3) (i) of Appendix G be revised to require a gust intensity of $U\sigma = 75$ fps gust velocity in the interval 0 to 20,000 ft. altitude with a linear decrease to 30 fps at 80,000 ft. altitude. This recommendation would obviate the need to do mission analysis to justify lower levels of loads than those required to meet the design envelope gust intensity factor of 85 fps for new airplanes whose characteristics are similar to previous designs which have been shown to be adequate for the lower level of gust intensity being proposed. There is no technical need for new aircraft which are similar to existing aircraft with regard to response characteristics and basic mission profiles to make extensive mission analysis computations in order to establish their adequacy with regard to loads resulting from encounters with continuous turbulence if they are designed for the gust intensity shown to be adequate for the existing design. Therefore, it is acceptable to use a gust intensity value of 75 fps from 0 to 20,000 ft. altitude, and a linear reduction from 75 fps at 20,000 ft. to 30 fps at 80,000 ft., provided the new design is comparable to a similar design with extensive satisfactory service experience. These criteria, which have been under discussion between FAA and industry for over 10 years, are proposed as new rules rather than acceptable means of complying with existing rules. Paragraph (b) (3) (i) is revised accordingly. The commenter also recommends that paragraph (d) (1) be revised to require a gust intensity of $U\sigma = 60$ fps on the interval 0 to 20,000 ft. altitude and be linearly decreased to 23 fps at 80,000 ft. altitude. The FAA disagrees. The gust intensities in paragraph (d) (1) are based on the distribution of gust intensity with altitude which were developed in the basic research for the development of continuous turbulence criteria and are, therefore, considered reasonable as a lower design envelope limit for mission analysis. A cost analysis was provided by the commenter to justify the lower gust intensities, but the FAA finds that this cost analysis was based on "design envelope analysis" alone. Paragraph (c), which is an alternative to paragraph (b), provides for a "mission analysis". Actual experience has shown that "mission analysis," which considers airplane operational characteristics, has been used in the past in lieu of the 85 fps intensities to prevent weight and cost penalties. Paragraphs (c) and (d) of Appendix G are adopted without substantive change.

A commenter recommends that paragraph (d) of Appendix G be revised to delete the reference to "fail-safe loads" since such loads are not provided in Appendix G. The FAA agrees. Paragraph (d) of Appendix G is revised accordingly.

A commenter recommends that proposed paragraph (e) of Appendix G be deleted since acceleration levels measured at the pilot station on current conventional aircraft can be established by flight demonstration much more easily and with less cost than by use of an expensive analysis considering response to continuous turbulence. Upon further review, the FAA has determined that it lacks sufficient information to specify the right combination of analysis and flight test to determine the acceleration levels at the pilot's station during continuous turbulence. Accordingly, proposed paragraph (e) of Appendix G is withdrawn. The current requirements related to operation in turbulence are adequate to determine the response at the pilot's station during continuous turbulence.

Proposal 8-62. For comments related to the proposal to add a new Appendix G to Part 25, see Proposal 8-25. Appendix G (redesignated Appendix H) to Part 25 is adopted with the changes discussed in Proposal 8-25.

Proposal 8-63. Final action on Proposal 8-63 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Amendment to § 27.571. Because of the change to § 25.1529 adopted in this amendment, the reference to § 27.1529(a) (2) in §§ 27.571(b), (c), (d) (1), (d) (3), and (e) is no longer appropriate. The reference is changed to "§ A27.4 of Appendix A". This discrepancy was overlooked in Notice 75-31 (40 FR 29410; July 11, 1975). Since this amendment is clarifying in nature and does not impose a burden on the public, notice and public procedure are unnecessary and good cause exists for adopting this amendment.

Proposal 8-64. For comments related to the proposal to amend § 27.1529, see Proposal 8-21.

Proposals 8-65 and 8-66. Final action on Proposals 8-65 and 8-66 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-67. For comments related to the proposal to add a new Appendix A to Part 27, see Proposal 8-25. Additional comments on this proposal, and on the proposal to add a new Appendix A to Part 29, are discussed here.

A commenter suggests that the wording of Appendix A be adjusted to take into account the differences between airplanes and rotorcraft. The FAA agrees. The appendix, as proposed, is generally equally applicable to airplanes and rotorcraft. However, several minor changes have been made to the appendix to provide for rotorcraft differences, primarily to cover rotors and differing fatigue standards.

A commenter objects to Appendix A, contending that: (1) The standards in current §§ 27.1529 and 29.1529 have been adequate in service, and (2) the proposal is excessive in scope and would create an undue burden. The FAA does not agree, having found that recommended maintenance procedures made available to operators/owners in the past were frequently inadequate in scope and content, providing no sound basis for maintaining the airworthiness of the rotorcraft. Appendix A, with the revisions and deletions discussed above and under Proposal 8-25, would not create an undue burden on the type certificate applicant.

One commenter expresses concern that certain inspection provisions in current § 91.217 might be applied to rotorcraft. The appendix contains no such requirement. Current § 91.217 applies only to certain airplanes.

Amendment to § 29.571. Because of the change to § 29.1529 adopted in this amendment, the reference to "§ 29.1529(a) (2)" in §§ 29.571(b), (c), (d) (1), (d) (3), and (e) is no longer appropriate. For consistency, the reference is changed to "§ A29.4 of Appendix A required by § 29.1529". This change was overlooked in Notice 75-31 (40 FR 29410; July

11, 1975). Since this amendment is clarifying in nature and does not impose a burden on the public, notice and public procedure are unnecessary and good cause exists for adopting this amendment.

Proposal 2-154. For a discussion directly related to proposed new § 29.783(g), see the discussion under Proposal 8-35 for § 25.783(g) (Proposal 2-59 of Notice 75-10). Section 29.783(g) is adopted without substantive change.

Proposals 8-68 through 8-76 and 2-164. Final action on Proposals 8-68, 8-69, 8-70, 8-71, 8-72, 8-73, 8-74, 8-75, 8-76, and 2-164 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-77. For comments related to the proposal to amend § 29.1529, see Proposal 8-21.

Proposals 8-78 and 8-79. Final action on Proposals 8-78 and 8-79 was taken in Airworthiness Review Program, Amendment No. 7: Airframe Amendments (43 FR 50578; October 30, 1978).

Proposal 8-80. For comments related to the proposal to add a new Appendix A to Part 29, see Proposals 8-25 and 8-67.

Proposal 8-81. No unfavorable comments were received on adding a new § 31.12 providing for standardized application of the airworthiness requirements for balloons. Accordingly § 31.12 is adopted without substantive change.

Proposal 8-82. No unfavorable comments were received on adding a new § 31.16 requiring that balloon empty weight be determined. Accordingly, § 31.16 is adopted without substantive change.

Proposal 8-83. No unfavorable comments were received on the intent of new § 31.17 which specifies performance in terms of an initial minimum rate of climb. However, a commenter raises the question whether compliance with proposed § 31.17(a) could be shown by testing at several altitudes and ambient temperatures and then extrapolating, by appropriate analysis, to the other values in the range for which approval is sought. The FAA considers that such extrapolation by analysis is an acceptable means of complying with proposed § 31.17(a), because the climb performance of balloons is based on fundamental principles and, therefore, can be predicted with sufficient accuracy from established test points.

The FAA notes that the 300 fpm climb rate requirement in § 31.17(a) was intended as a minimum standard. To make this clear, § 31.17 as adopted is revised by inserting the words "at least" before the number "300" in the first sentence of § 31.17(a).

Proposal 8-84. A commenter, referring to new § 31.19(a) governing critical uncontrolled descent, suggests that it would be difficult and time-consuming to determine which tear is the most critical single tear in the balloon envelope between tear stoppers. The FAA does not agree. An analysis, or a combination of test and analysis, would be an acceptable means of determining the most critical single tear. It would not be necessary to test each kind of tear. No other unfavorable comments were received on the proposal to add a new § 31.19. Accordingly, § 31.19 is adopted without substantive change.

Proposal 8-85. No unfavorable comments were received on the proposal to amend § 31.27(c) to be consistent with new § 31.19, Performance: Uncontrolled descent. Accordingly, the proposal is adopted without substantive change.

Proposal 8-86. No unfavorable comments were received on the proposal to amend § 31.65 updating the position light standards and expressing them in language consistent with related standards in other airworthiness parts. However, the FAA finds that the use of a cross reference to § 23.1397 as proposed in § 31.65(e) may be inconvenient for those governed by Part 31. Accordingly, § 31.65, as adopted, sets forth the chromaticity coordinates for aviation red and aviation white as currently prescribed in § 23.1397.

Proposal 8-87. No unfavorable comments were received on the proposal to amend § 31.71. However, after further consideration, the FAA concludes that proposed § 31.71(a) (2) is unnecessarily restrictive in that it would, in all cases, require marking the equipment as to its identification, function, *and* operating limitations. Marking of the equipment as to its identification, function, *or* operating limitations, or any applicable combination of those factors is sufficient. This is also the language used in corresponding sections of other aircraft airworthiness regulations. Section 31.71, as adopted, is revised accordingly.

Proposal 8-88. No unfavorable comments were received on the proposal to amend § 31.81 to detail operating limitations and information. The FAA notes, however, that proposed § 31.81(b) is not clear as to which "operating limitations and other information necessary for safe operation" must be furnished. The FAA's intent, as stated in the explanation, is to require that the information established under § 31.81(a) be furnished. Section 31.81(b) is revised accordingly. Section 31.81(a) is adopted without substantive change.

Proposal 8-89. A commenter is concerned that proposed § 31.82 might require balloon manufacturers to prepare two overlapping maintenance documents—the maintenance manual currently supplied to operators/owners, and the proposed Instructions for Continued Airworthiness. The FAA notes that under §§ 31.82 and 21.50(b), balloon manufacturers would be required to prepare and furnish only the Instructions for Continued Airworthiness.

The FAA notes further (as discussed under Proposal 8-21) that the Instructions for Continued Airworthiness need not be finalized until delivery of the first balloon, while § 31.82, as proposed, could be interpreted to require that they be finalized before type certification. This point is clarified in § 31.82, as adopted, consistent with the corresponding requirement in Parts 23, 25, 27, and 29.

Proposal 8-90. No unfavorable comments were received on the proposal to amend § 31.85(b) (1). However, a commenter questions whether percentage figures on the required fuel quantity gauge would be acceptable. The FAA has determined that, in the particular case of balloons (for which the fuel quantity information is to an extent less important to safety than for other classes of aircraft), calibration of the fuel quantity gauge in percent of fuel cell capacity is an acceptable means of complying with the last sentence of § 31.85(b) (1). Section 31.85(b) (1), as adopted, is revised to make this clear.

Proposal 8-91. No adverse comments were received on the proposal to add a new Appendix A to Part 31. However, comments received on the proposals to add a similar appendix to Parts 23, 25, 27, and 29 (Proposal 8-25), were equally valid with respect to this proposal. Accordingly, Appendix A to Part 31, as adopted, is revised in substance as applicable.

Regarding the proposals to require generalized repair data in the Instructions for Continued Airworthiness, it is more appropriate, as well as necessary and practicable, to include specific instructions for repair of the key elements of a balloon—the balloon envelope and its basket or trapeze. This information is incorporated in paragraph A31.3(i) as revised.

Proposal 8-92. A commenter objects to § 33.4 insofar as it would require completion of the Instructions for Continued Airworthiness before the type certificate is issued, contending that a significant portion of the data and other material called for is typically not compiled until 6 months or longer after type certification. The commenter suggests that manufacturers be allowed to prepare and make available the Instructions for Continued Airworthiness before the first aircraft equipped with the subject engine is put into service, which, it claims, is the earliest such instructions would be needed. Requiring the engine manufacturer to complete the Instructions for Continued Airworthiness before the type certificate is issued would constitute an unnecessary burden. However, the FAA considers that they must be made available, and furnished, upon delivery of the first engine on an aircraft or issuance of a standard certificate of airworthiness for the aircraft, whichever occurs later. This would be consistent with corresponding requirements proposed for other products. See Proposals 8-5 and 8-21. Section 33.4 is revised and adopted accordingly.

Proposal 8-93. A commenter observes that § 33.5 requires that the instruction manual for installing and operating the engine be "approved," whereas proposed § 33.4 requires that the Instructions for Continued Airworthiness be "acceptable to the Administrator," and recommends that the latter term be used for consistency. The FAA notes that the term "acceptable to the Administrator" is widely used in Part 43 in connection with maintenance requirements, whereas the term "approved" is more frequently used in FAR Parts containing installation and operating requirements. Considering the FAR as a whole, the FAA does not agree that such consistency is essential. Accordingly, § 33.5 is adopted as proposed.

Proposal 8-94. Several commenters object to proposed §§ 33.6(e) and (f), and to proposed §§ 23.1521(a) and 25.1521(a) (Proposals 8-20 and 8-56, respectively) on the grounds that the use of rated takeoff power or thrust for 10 minutes with one engine inoperative should not be limited to "the extent that the utilization is necessary for the airplane to avoid, without necessitating turning maneuvers, obstacles beneath the flight path intended for the airplane prior to the loss of the engine." In light of these comments and after further review, the FAA concludes that these proposals are premature and they are withdrawn.

In addition, the proposed transfer of the definitions for rated power and thrust from § 1.1 to proposed new § 33.6, Proposal 8-1, is withdrawn since the transfer may cause confusion in the administration of the aircraft certification requirements. Accordingly, Proposals 8-1, 8-20, 8-56, and 8-94 are withdrawn.

Proposal 8-95. For discussion of proposed § 33.19(b) see the discussion under Proposal 8-103. Revised § 33.19 is adopted without substantive change.

Amendment to §§ 33.55(c), 33.57(b), 33.93(b), and 33.99(b). Because of the deletion of §§ 33.5(c), (d), and (e), and the addition of a new § 33.4, the reference to "§ 33.5" in §§ 33.55(c), 33.57(b), 33.93(b), and 33.99(b) is no longer appropriate. For consistency, the reference is "§ 33.4." This change was inadvertently overlooked and was not proposed in Notice 75-31 (40 FR 29410; July 11, 1975). This editorial change corrects that discrepancy. Since this amendment is clarifying in nature and does not impose a burden on the public, notice and public procedure are unnecessary and good cause exists for adopting this amendment.

Proposal 8-97. A commenter recommends that § A33.3(a) (6) of Appendix A to Part 33 be revised by adding the words "requiring periodic attention" so as to make it clear that scheduling information is required solely for parts that require such attention. The language in this section is adequate. For parts not needing periodic attention, the applicant has only to state that parts not scheduled need not be serviced.

A commenter infers incorrectly that proposed §§ 43.16 and 91.163(c) apply only to rotorcraft. These regulations with the revision proposed also affect other classes of aircraft, as well as engines and propellers.

Some comments received on the proposed appendices for Parts 23, 25, 27, and 29 (Proposal 8-25) were equally valid with respect to proposed Appendix A to both Parts 33 and 35. Accordingly, the appendices to Parts 33 and 35 are revised in substance as applicable.

Proposal 8-98. For a discussion related to proposed § 35.3 see Proposal 8-93. A commenter observes that § 35.3 requires that the instruction manual for installing and operating the propeller be "approved," whereas § 35.4 requires that the Instructions for Continued Airworthiness be "acceptable to the Administrator," and recommends that the latter term be used for consistency. The FAA notes that the term "acceptable to the Administrator" is widely used in Part 43 in connection with maintenance requirements, while the term "approved" is more frequently used in FAR parts containing installation and operating requirements. Considering the FAR as a whole, the FAA does not agree that consistency is required in this instance. Accordingly, § 35.3 is adopted as proposed.

Proposal 8-99. In response to the concern of a commenter representing a number of Part 121 operators, the FAA notes that there is no requirement that any operator/owner use the Instructions for Continued Airworthiness referred to in proposed § 35.4. The new §§ 43.13(a), 43.16, and 91.163(c) allow the use of other methods. In particular, the use of maintenance manuals and continuous airworthiness maintenance programs developed under Parts 121, 123, 127, and 135, or an inspection program approved under § 91.217(e) would be acceptable alternatives to the Airworthiness Limitations section. This commenter suggests that language be added to proposed § 35.4 to make it clear that such alternatives may be used. The FAA agrees. The language in §§ 43.16 and 91.163(c) is revised accordingly.

Consistent with the discussion on proposed § 33.4 dealing with engines (see Proposal 8-92), the FAA finds that requiring the propeller manufacturer to complete the Instructions for Continued Airworthiness before the type certificate is issued would constitute an unnecessary burden. Accordingly, § 35.4 as adopted, requires that those instructions be made available and furnished upon delivery of the first aircraft with the propeller installed, or upon issuance of a standard certificate of airworthiness for an aircraft with the propeller installed, whichever occurs later.

Proposal 8-100. No unfavorable comments were received on the proposal to amend § 35.5 to more clearly indicate the basis for operating limitations and where they are listed. Accordingly, § 35.5 is adopted without substantive change.

Proposal 8-101. No unfavorable comments were received on the proposal to amend § 35.23 to provide an extreme low pitch indication. Accordingly, § 35.23 is adopted without substantive change.

Proposal 8-102. A commenter does not concur with the proposal to revise § 35.37 to require evaluation of metallic hubs and blades, stating that the words "must", "all", and "reasonably foreseeable" in the second sentence imply responsibility beyond current knowledge and the state of the art. The FAA does not agree. These terms are used in the current rule and the current state of the art defines the limits of the provision.

The same commenter recommends that § 35.37 be revised to apply to consideration of "normal and reasonably foreseeable load patterns," to account for the fact that only normal operations will or should be considered. The FAA does not agree. Load patterns which are reasonably foreseeable are critical and should be investigated even if they are not normal.

The same commenter also indicates that the third sentence should be revised to eliminate the term "reduction factors," since reduction factors are identified with only one particular method of presentation. The FAA agrees and the section is revised accordingly. This commenter finally states that the explanation implies that manufacturers have not taken permissible damage and material variation into account. This implication is not intended. It is the FAA's view that the fatigue evaluation should consider the occurrence of typical service damage and variation in material properties and the rule would provide for such an evaluation.

Another commenter suggests that the section be revised by adding certain technical requirements that are related to infinite component life. It is not necessary to specify requirements concerning infinite component life, since they are considered a normal part of propeller fatigue testing.

Section 35.37 is adopted as revised.

Proposal 8-103. A commenter objects to the proposal to add a new § 35.42 to define durability requirements for propeller blade pitch control system components, stating that the term "bench tests" in §§ 35.42(a) and (b) is too descriptive and restrictive. The FAA agrees that a reference to "bench tests" may be too restrictive. Other test methods may be equally acceptable in providing the necessary data. Accordingly, §§ 35.42(a) and (b) are revised to eliminate the specific reference to "bench."

The commenter also suggests that the words "in frequency and amplitude" be eliminated from § 35.42(a) since the words "cyclic testing" are fully descriptive. The FAA believes that these words are needed to prescribe key elements in the required test.

The commenter further suggests that the proposed testing to the equivalent of 1,000 hours of propeller operation is too restrictive in the case of a propeller with an overhaul period of less than 1,000 hours. The FAA considers the specific testing to be the minimum necessary to provide an acceptable safety level in service. The rule does not, however, prevent the selection of overhaul intervals of less than 1,000 hours.

Finally, the commenter suggests that the rule should permit an alternate of acceptance based upon service experience. The FAA recognizes that service experience can provide a statistical basis for determining component reliability. Its applicability, however, may vary according to such considerations as type of operation, the nature of the article under consideration, the degree of similarity between the reference article and the certification article, and the completeness of service records. Since it is dependent on such a variety of factors, the FAA does not agree that a specific alternative based on service experience should be included.

The proposal to add a new § 35.42, therefore, is adopted with the change discussed below. No adverse comments were received on the related proposed revisions to §§ 23.905, 25.905, and 33.19 to add the reference to new § 35.42, and the revisions are adopted.

Proposal 8-104. For comments related to the proposal to add a new Appendix A to Part 35, see Proposals 8-25 and 8-97.

A commenter objects to proposed § A35.1(c) of the appendix because the propeller owner (aircraft operator) would be wastefully provided with instructions and data that the propeller owner has no authority to use. The FAA does not agree. The Instructions for Continued Airworthiness must be furnished to the aircraft owner/operator who is the person responsible for maintaining the aircraft (including the propeller). The owner/operator may not be authorized to maintain the propeller, but the owner/operator can place the instructions in the hands of persons who are authorized.

The new Appendix A to Part 35, as adopted, is revised in accordance with comments discussed in Proposal 8-97.

Proposal 8-105. The proposed revision of § 43.9(a)(4) is being deferred for consideration in a forthcoming notice of proposed rule making of the Operations Review Program.

Proposal 8-106. A commenter representing a number of scheduled air carriers is concerned that the use of maintenance manuals and continued airworthiness programs developed under current § 121.133 and Subpart L of Part 121 (generally via Maintenance Review Board procedures), or under similar provisions of Parts 127 and 135, might not be acceptable as "other methods, techniques, and practices" under the terms of proposed § 43.13(a). This commenter suggests that language be added to proposed § 43.13(a) to make this clear. The FAA does not agree. The proposed language states that the use of such manuals and continued airworthiness programs is acceptable.

Proposal 8-107. A commenter representing a number of scheduled air carriers recommends that the Airworthiness Limitations section referred to in proposed § 43.16 include life limitations only and not inspections or other maintenance items. As discussed under Proposal 8-3, the FAA does not agree.

A commenter suggests that the words "or other methods, techniques; and practices acceptable to the Administrator" be added at the end of proposed § 43.16 to make it consistent with proposed § 43.13(a). The Airworthiness Limitations section contains specific mandatory replacement times and inspection intervals (with related procedures) that must be complied with, unless it can be shown by an operator with an approved maintenance program that these times are inappropriate for his operation. The use of alternatives not covered in the Airworthiness Limitations section would be allowed if approved by the Administrator. Section 43.16 is revised to specifically state the alternatives to compliance with the Airworthiness Limitations section.

Proposal 8-108. No unfavorable comments were received on the proposal to amend § 45.11 to qualify, with respect to manned free balloons, the requirements in § 45.11(a) that deal with the location of the identification plate. Accordingly, the proposal is adopted without substantive change.

Proposal 8-109. No unfavorable comments were received on the proposal to amend § 45.13 to correctly reference §§ 45.11(a) and (b) with regard to identification plate requirements. Accordingly, the proposal is adopted without substantive change.

Proposal 8-110. A commenter representing a number of scheduled air carriers recommends that the words "inspection interval, or related procedure" be deleted from proposed § 45.14. The supporting rationale is the same as submitted by this commenter concerning Proposal 8-3 to amend § 21.31(c). As discussed under Proposal 8-3, the FAA disagrees.

The language in § 45.14 covers rotorcraft as well as airplanes, balloons, engines, and propellers. To make this clear, the word "Rotorcraft" is changed to "Manufacturer's".

Two commenters object to proposed § 45.14 on the grounds that it would be impracticable to mark small parts with a part and serial number. The FAA is not aware that the marking of small parts under current § 45.14 has presented a problem. In any event, the rule allows markings that are equivalent to part and serial numbers, such as symbols enabling the identification of the part as one for which a replacement time, inspection interval, or related procedure is specified in an Airworthiness Limitations section. Identification of such parts is clearly essential for safety. Accordingly, § 45.14 is adopted as revised.

Proposal 8-111. A commenter representing a number of scheduled air carriers recommends that the words "inspection interval, or related procedure" be deleted from proposed § 91.163(c). The supporting rationale is the same as that submitted by this commenter concerning Proposal 8-3 to amend § 21.31(c). As discussed under Proposal 8-3, the FAA disagrees. However, § 91.163(c) is revised to specifically identify the acceptable alternatives to compliance with the "Airworthiness Limitations" section.

The language in proposed § 91.163(c) covers rotorcraft as well as airplanes, balloons, engines, and propellers. To make this clear, the word "Rotorcraft" in § 91.163(c) has been changed to "Manufacturer's", and a statement has been added that operations specifications approved by the Administrator may be used in lieu of the Instructions for Continued Airworthiness. Section 91.163(c) is adopted as revised.

Proposal 8-112. No unfavorable comment was received on the proposal to amend § 91.165 to clarify maintenance personnel entries in maintenance records. Accordingly, the proposal is adopted without substantive change.

Proposal 8-113. Several commenters object to §§ 91.173(a) (2) (i) and (iii). A commenter states that adoption of the proposal would result in an inconsistency between § 91.173 and § 121.380, which contains the recordkeeping requirements for aircraft maintained under Part 121. The commenter also states that this inconsistency would cause great difficulty and economic hardship whenever an aircraft is sold by a Part 121 operator to a Part 91 operator and the Part 91 aircraft is maintained by a Part 121 operator under its repair station certificate. According to the commenter, the economic hardship would occur to both the Part 91 operator and the repair station. The same commenter contends that reliability information accumulated in recent years on transport category airplanes shows that there is no need for individualized total time records on equipment and components. Another commenter states that proposed requirements would result in large increases in maintenance costs for Part 91 operators and that only those components that are life-limited should have to carry total times.

The FAA concludes, however, that revision of § 91.173(a) (2) (i) would contribute significantly to safety with little burden on those affected. The currently prescribed record of total time in service for the airframe does not generally apply to the aircraft's engines or propellers, since these components are frequently overhauled (or replaced) at different times. As a practical matter, it is known that operators of such aircraft normally keep records from which the total time in service of engines and propellers can be derived. Therefore, the FAA does not agree that the requirement to keep total times on engines and propellers would be a hardship and burden upon the operators. Accordingly, § 91.173(a) (2) (i) is adopted without change.

In light of the comment on proposed § 91.173(a) (2) (iii), the FAA has given further review of the proposal and has concluded that existing requirements satisfy the objective of the proposal. Accordingly proposed § 91.173(a) (2) (iii) is withdrawn.

The reporting and recordkeeping requirements contained in § 91.173 have been approved by the Office of Management and Budget in accordance with the Federal Reports Act of 1942.

Proposal 8-114. Several commenters agree with the intent of proposed § 91.193(c) (4) but suggest changes. A commenter suggests that the proposed installation instructions for hand fire extinguishers would be more appropriately placed in the type certification rules. The FAA does not agree. New type certification rules do not apply to aircraft already in service.

A commenter suggests that the words "unless obvious" be added to clarify when the hand fire extinguisher stowage provisions must be properly identified. The FAA agrees. Proposed § 91.193(c) (4) is revised and adopted accordingly.

Proposal 8-115. One commenter objects to the proposal to revise § 91.197(a) to require passenger information signs to meet the requirements of § 25.791. The commenter states that it is unnecessary, in many small general aviation aircraft operating under Subpart D of Part 91, to have such signs just for the sake of uniformity. The commenter also states that "nonstandard" signs now in use are wholly adequate to meet the needs of the type of operation. Finally, the commenter points out that installation costs for aircraft not currently having signs would be high and the pilot could just as easily announce the information as he could activate the signs.

Based on these comments and considering the type of operation involved, the FAA finds that the benefits associated with the proposal do not warrant its adoption. The proposal to revise § 91.197(a) is withdrawn.

Proposals 8-116, 8-117, 8-118, and 8-119. Final action on Proposals 8-116, 8-117, 8-118, and 8-119 was taken in Airworthiness Review Program, Amendment No. 8: Cabin Safety and Flight Attendant Amendments (45 FR 7750; February 4, 1980).

Proposal 8-120. In light of the need to conduct further testing of protective breathing equipment, the FAA withdraws its proposal to amend § 121.337, which will be addressed in an upcoming notice of proposed rule making.

ADOPTION OF THE AMENDMENT

Accordingly, Parts 11, 21, 23, 25, 27, 29, 31, 33, 35, 43, 45, and 91 of the Federal Aviation Regulations are amended, effective October 14, 1980.

(Sections 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958 (49 U.S.C.1354(a), 1421, 1423, and 1424)); and Section 6(c) of the Department of Transportation Act (49 U.S.C.1655(c)))

The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this document is contained in the docket. A copy of it may be obtained by writing to the individual and address listed in the "For Further Information Contact" paragraph.

Amendment 91-168

Operating Limitations and Related Requirements for Certain Propeller-Driven, Small Airplanes Designed for Agricultural Aircraft Operations or Fire Fighting Purposes

Adopted: September 30, 1980 **Effective: November 10, 1980**

Applicability date: **For operation of affected airplanes that do not have flight time, as specified, before January 1, 1980, and for which certificates and approvals are issued after the effective date of this rule.**

(Published in 45 FR 67064, October 9, 1980)

SUMMARY: This amendment prescribes requirements governing operation of certain propeller-driven, small airplanes, that are excluded from the applicability of noise level rules because they are designed for agricultural aircraft operations or for dispensing fire fighting materials. It applies to operation of newly produced airplanes (without flight time before January 1, 1980), and acoustically changed airplanes (without flight time in the changed design before January 1, 1980), that have not been shown to comply with Part 36 noise levels. It prohibits operation of the affected airplanes except for those operations that are directly associated with the work activity for which they are designed. The amendment also requires that an operating limitation be appropriately provided to the pilot. Under the amendment, on and after its effective date, the FAA will not issue an original standard airworthiness certificate or approve any "acoustical change" of those airplanes unless the operating limitation is provided as required. Experience indicates that this amendment is needed to ensure that the affected newly produced and acoustically changed aircraft that take advantage of the agricultural and fire fighting exception in the noise certification rule, are not used for purposes for which the exception was not intended.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard N. Tedrick, Noise Policy and Regulatory Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone (202) 755-9027.

SUPPLEMENTARY INFORMATION:

REGULATORY HISTORY

This amendment is based upon a Notice of Proposed Rule Making (Notice No. 76-27) published in the FEDERAL REGISTER on December 23, 1976 (41 FR 56065). As discussed in that Notice, it was issued in response to the U.S. Environmental Protection Agency's (EPA) recommended noise regulations for propeller-driven, small airplanes (adopted in part under amendments also published in the FEDERAL REGISTER on December 23, 1976 (41 FR 56065)). Pursuant to § 611(b) of the Federal Aviation Act of 1958, as amended, the FAA has consulted with the Secretary of Transportation and EPA concerning this amendment.

BACKGROUND

Part 36 of the Federal Aviation Regulations (FAR) contains noise standards for type design and airworthiness certification, and approvals of acoustical changes of certain propeller-driven, small airplanes. Those standards, contained in Subpart F and Appendix F of Part 36, do not apply to airplanes designed for agricultural aircraft operations (as defined in FAR § 137.3, effective January 1, 1966) or for dispensing fire fighting materials (see, § 36.1(a)(2)). Complementary procedural provisions are prescribed in §§ 21.93(b) and 21.183(e)(2) of FAR Part 21.

For aircraft in those two classes, the rules permit certification and changes in certification without showing compliance with the noise limits under Appendix F. However, the environmental impact of the exclusion is minimized for aircraft in the restricted category because those aircraft are subject to FAR § 91.39 which prohibits operations other than those necessary for the accomplishment of the work activity for which the restricted category airplanes were designed. That limitation does not apply to agricultural and fire fighting airplanes that are type certificated in categories other than restricted and, thus, have standard airworthiness certificates. That allows those propeller-driven, small airplanes with standard airworthiness certificates to engage in operations not related to the accomplishment of agricultural or fire fighting activities even though they were excepted from Part 36 noise requirements solely because of the strong public interest in agricultural and fire fighting activity. This has the potential for circumventing the reason for the limited exception for agricultural and fire fighting airplanes in § 36.1(a)(2).

Therefore, the FAA proposed this amendment to limit operation of utility, acrobatic, and transport category airplanes that take advantage of that exception to those associated with the work activity for which they were designed. The affected airplanes, under this amendment, may still engage in operations other than those directly associated with the activity for which they were designed but only if they, like other propeller-driven, small airplanes, have been shown to comply with the otherwise applicable noise standards of Appendix F of Part 36. This rulemaking also amends the certification procedures in Part 21 and the noise regulation in Part, 36, to reflect the new operating limitation under new § 91.56 under Part 91. Those amendments to §§ 21.93(b) and 21.183(e)(2) govern the original issuance of standard airworthiness certificates and acoustical change approvals for the affected airplanes that do not have flight time before January 1, 1980. Under the rule, those certificates will not be issued and those approvals will not be given after the effective date of this rule unless the statement required under FAR § 36.1583 is provided. Those changes are discussed in more detail in the "section-by-section analysis," below.

DISCUSSION OF COMMENTS

Interested persons were invited to participate in this rulemaking proceeding by submitting their written comments to the regulatory docket on or before February 28, 1977. Due consideration has been given to the two comments received in the regulatory docket regarding Notice No. 76-27.

One commenter expressed concern about the proposal as it affects airplanes designed for agricultural purposes that are type certificated in categories other than restricted, and that have been excepted under § 36.1(a)(2). The commenter stated that there may be a need or desire to type certificate such aircraft in the normal category for sale in the United States, as well as for export. The FAA agrees. This amendment does not prohibit manufacturers from certificating an affected airplane in the normal category if they should choose to do so. However, for airplanes without flight time before January 1, 1980, that have not been shown to comply with Part 36 noise standards, this amendment imposes an operating limitation that precludes their use in the United States for other than the purpose for which their certification was approved.

The EPA submitted a comment supporting this amendment for the reasons stated in proposing the rule.

EVALUATION OF IMPACTS

The economic and technological impacts of this amendment have been considered pursuant to § 611(d) of the Federal Aviation Act of 1958, as amended. Since this amendment only limits the use of a small number of airplanes to the agricultural and fire fighting operations for which they were designed, its regulatory and economic impact is minor. In deciding whether to purchase or modify an airplane covered by the rule, the operator should consider the impact of limiting the operation of the airplane to its special purpose. That restriction is the reasonable consequence of operating an airplane which has not been shown to meet the otherwise applicable noise level requirements. One anticipated consequence is an increased incentive to show, whenever possible, that the airplane complies with those requirements rather than accept the operating limitation. Such a result is fully consistent with the noise control objectives of § 611 of the FA Act.

The environmental benefit of this rule is the limiting of a small class of agricultural and fire fighting airplanes to those operations for which they are designed (unless they comply with the otherwise applicable noise standards). This will result in slight reductions in noise exposure, but should have little or no effect on aircraft emissions or fuel consumption compared with the effects of current rule.

SECTION-BY-SECTION ANALYSIS

Part 21. Part 21 contains the procedures for the certification of products and parts. Subparts D and H of Part 21 prescribe procedures that govern the FAA approval of changes to type certificates and issuance of airworthiness certificates, respectively. Section 21.93 governs the different classes of type certificate changes. For propeller-driven, small airplanes in the normal, utility, acrobatic, transport, and restricted categories, § 21.93(b) (3) defines those changes in type design that are "acoustical changes" (and that must, therefore, be shown not to increase the noise levels of the airplanes above specified limits). The applicability of "acoustical change" provisions currently exclude "airplanes that are designed for 'agricultural aircraft operations' . . . or for dispensing fire fighting materials." Section 21.183(e) (2), concerning original issue of standard airworthiness certificates, contains an identical exclusion. The effect of those exclusions is that any type design change, which would otherwise be an 'acoustical change' may be approved and standard airworthiness certificates may be issued for those special purpose airplanes without showing compliance with the otherwise applicable noise standards for propeller-driven, small airplanes. The FAA has found that those exclusions are warranted by the strong public interest in agricultural and fire fighting aircraft operations and the need for high power levels for the safe conduct of those operations. However, aircraft excepted from compliance with Part 36 solely because of their agricultural and fire fighting capabilities should be limited to activities related to agricultural and fire fighting operations. Thus, under this amendment to Part 91, in order to conduct operations not related to agricultural and fire fighting operations, those airplanes are required to comply with the noise limits that apply to airplanes that do not qualify for the exclusion.

Notice No. 76-27 did not expressly propose to regulate the original issue of standard airworthiness certificates as it did acoustical change approvals. However, since under the amendment noncomplying airplanes certificated in the categories that have standard airworthiness certificates cannot be operated in the United States if the airplane did not have flight time before January 1, 1980, FAA's original issuance of a standard airworthiness certificate could be misunderstood as authorizing operation contrary to the prescribed operating limitation. Thus, this amendment includes amendments to §§ 21.93(b) and 21.183(e) (2) to reflect the Part 21 operating limitation by precluding FAA issuances and approvals covered by those sections for the affected airplanes unless the operating limitation required under § 36.1583 is provided. By so doing, the regulation of the issuance of the type certificates is unnecessary since the operator of each affected airplane will have been provided the applicable operating limitation. Notice No. 76-27 proposed to add the words "and for which no requirements are prescribed in Part 36 of this chapter" to reflect the limitation on the operation of those airplanes provided in the required operating limitation under § 36.1583. The intent and significance of that addition is clarified in this amendment by express reference to the applicability of § 36.1583 requirements, including flight time before January 1, 1980, rather than to Part 36 generally.

In Amendment 36-7 (42 FR 12360; March 3, 1977), the acoustical change provisions for propeller-driven, small airplanes were redesignated as § 36.9. Inadvertently, the cross reference to those provisions under § 21.115(a) was not also changed at that time to fully reflect for the effects of Amendment 36-7. Thus, § 21.115(a) is editorially amended to achieve that result.

Part 36. Part 36 contains noise standards for the certification of aircraft. This amendment changes the applicability of Part 36 noise standards concerning the issuance of changes to type certificates (acoustical changes) and original standard airworthiness certificates for the affected propeller-driven, small airplanes. Thus, § 36.1(a) (2) is amended to reflect the applicability of Part 36, to those agricultural and fire fighting propeller-driven, small airplanes to which the Part 36 operating limitation provisions apply.

Subpart G of Part 36 contains operating limitations and information requirements for aircraft certificated under Part 36. In part, the purpose of operating limitations issued under Subpart G is to establish, during certification of the airplane, noise related requirements that must later be complied with by the operator of the airplane. As proposed in the notice, this amendment adds a new § 36.1583, entitled "[n]oncomplying agricultural and fire fighting airplanes." This new section provides that a specified statement must be provided in each noncomplying airplane that does not have flight time before January 1, 1980 (for newly produced airplanes), for flight time before January 1, 1980, in the changed configuration (for acoustically changed airplanes). The statement indicates that the airplane has not been shown to comply with the applicable noise limits in FAR Part 36 and must be operated in accordance with FAR § 91.56. That statement must be furnished in the manner prescribed in § 36.1581, which specifies the conditions under which information must be furnished in the approved portion of the Airplane Flight Manual or in other approved manual material, markings, or placards. Under the rule before this amendment, the only information required to be furnished under § 36.1581 is that approved under § 36.1501. The statement required by new § 36.1583 is in addition to that information. To assure consistency, § 36.1581 is also amended by adding a reference to the statement required by § 36.1583. It should be noted that the operating limitation will be required by § 36.1583 only for airplanes for which an original issue standard airworthiness certificate is issued or an acoustical change approval is given after the effective date of this amendment.

Part 91. This amendment adds a new § 91.56 to Subpart A of Part 91, the general rules that govern the operation of aircraft. In a manner similar to the rules for restricted category aircraft in § 91.39, new § 91.56 requires that agricultural and fire fighting, propeller-driven, small airplanes (having standard airworthiness certificates) that have not been shown to comply with the noise limits in Part 36, may not be operated except as specified. Three situations are provided which prescribe how the noncomplying airplane may be used—(1) to the extent necessary to the work activity directly associated with the agricultural or fire fighting purpose for which it is designed; (2) to provide flight crewmember training in the "special purpose operation for which the airplane is designed"; and (3) to conduct "nondispensing aerial work operations" in accordance with the requirements under § 137.29(c) of Part 137. Aircraft operations between bases of operation and work sites for the sole purpose of conducting the special purpose operation (and returning) are considered under the rule as part of the permissible "work activity."

ADOPTION OF THE AMENDMENT

Accordingly, Parts 21, 36, and 91 of the Federal Aviation Regulations (14 CFR Parts 21, 36, and 91) are amended, effective November 10, 1980.

(Sec. 307(c), 313(a), 601(a), and 611(b), Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348(c), 1354(a), 1421, and 1431(b)); Sec. 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)); Title I of the National Environmental Policy Act of 1969 (42 U.S.C. § 4321, et seq.); and Executive Order 11514, March 5, 1970.)

NOTE: The Federal Aviation Administration has determined that since this document involves a regulation based on a notice of proposed rulemaking issued before the effective date of the Department of Transportation Regulatory Policy and Procedures (44 FR 11034; February 26, 1979) implementing Executive Order 12044, the Department of Transportation Order does not apply. Further, this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821 or 11949 or OMB Circular A-107, which were superseded by Executive Order 12044.

Amendment 91-169

Establishment of New Part 125

Prescribing Certification and Operation Rules for Certain Large Airplanes

Adopted: October 2, 1980 **Effective: February 1, 1981**

(Published in 45 FR 67214, October 9, 1980)

SUMMARY: These amendments establish a uniform set of certification and operation rules for large airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more when used for any purpose other than common carriage. These rules substantially upgrade the level of safety applicable to large airplanes formerly operated under Part 91, which provides basic general operating and flight rules for all operations. The number and types of accidents involving large airplanes operating under Part 91 demonstrate the need for this upgrading. Moreover, because the applicability of these rules does not depend upon a compensation or hire test, they enhance the FAA's capability to ensure that many more members of the public are afforded a higher level of safety. This rule is the final step in a regulatory upgrade and modernization program that has become essential with the continued deregulation of air transportation.

FOR FURTHER INFORMATION CONTACT: Harold E. Smith, Regulatory Projects Branch (AVS-24), Safety Regulations Staff, Associate Administrator for Aviation Standards, 800 Independence Avenue, SW., Washington, D.C. 20591, Telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

Notice of Proposed Rule Making

These amendments are based on Notice of Proposed Rule Making 79-19 (44 FR 66324; November 19, 1979). All interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. Except for the changes discussed below, these amendments and the reasons for their adoption are the same as those stated in Notice 79-19.

Background of This Rulemaking Proceeding

This rule culminates an extended effort by the FAA to upgrade and standardize the regulations applicable to certain large airplanes used in noncommon (private) carrier commercial operations (carriage other than common carriage is private carriage). In 1970, the Secretary of Transportation directed the Assistant Secretary for Safety and Consumer Affairs, Office of the Secretary of Transportation, to conduct an indepth study of charter operations utilizing large airplanes. Notice 79-19 summarizes the recommendations made as a result of that study. In short, the study recommended that new regulations be developed for large airplanes, pressurized airplanes, and turbine-powered airplanes engaged in noncommon carriage. Emphasis was placed on achieving a standard appropriate to the operation of transport category airplanes, including requirements for crew proficiency, operations, and airworthiness, that would provide a level of safety which compares favorably with Part 121. The study also recommended the establishment of a new part in the Federal Aviation Regulations (FAR) which would apply a single set of regulations to large airplanes used for various purposes, including those used for compensation or hire but excluding common carriage which would continue to be regulated under Part 121. One important feature of those recommendations was that "FAA field inspectors would no longer be required to make an economic determination of what constitutes operation 'for compensation or hire.'" The antique nature of the "compensation or hire" test is illustrated by the fact that it originated with the regulation of ground transportation under the Interstate Commerce Act which was enacted in the late 1800's. The test is presently contained in the definition of a "commercial operator" in the FAR and is essentially the same as the definition adopted in 1949 by the Civil Aeronautics Board. Section 1.1 defines "commercial operator" as "a person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier. . . ." Where it is doubtful whether the operations are "for compensation or hire," the test has been "whether the carriage by air is merely incidental to the person's other business or is, of itself, a major enterprise for profit."

The FAA partially implemented the recommendations of the 1970 Department of Transportation Task Force in 1972 with the adoption of new Subpart D of Part 91, which was the initial step in upgrading the level of safety applicable to large airplanes.

Since 1972 the FAA has carefully monitored the operating experience of large airplanes engaged in noncommon carriage operations. There are a number of significant aspects to this operating experience. First, and perhaps the key aspect, is the fact that the economic test of "compensation or hire" has proved to be a nebulous guide to both the FAA and the aviation community in attempting to determine whether the operations fall within Subpart D of Part 91 or under the commercial operator regulations of Part 121. The agency found that many sham arrangements have been developed by some operators to mask de facto commercial operations so that they can be conducted under Part 91. Despite the FAA's efforts to detect these illegal operations, frequently it is only after an accident or incident that sufficient facts are available to unmask the illegal operator. Once the unfortunate event occurs, the violator is subject to enforcement action. It would be far better, however, for the accident or incident to have been prevented. The difficulties in application of the "compensation or hire" test are not limited to the unscrupulous operator. There have been instances in which a lessee of a large airplane has assumed responsibility unwittingly for its operation without recognizing the obligations. Many operators who desire to comply with the applicable regulations have, in good faith, experienced confusion over whether they are entitled to operate under Part 91 or whether they are required to obtain a commercial operator certificate. Many interpretations have been sought and issued, which require substantial time and effort on the part of the public and FAA personnel.

Another aspect of the experience involving U.S.-registered large airplanes, ostensibly operating under Subpart D, is the significant number of accidents which have occurred. Post-accident investigations indicate a wide range of deficiencies, including defective engines, failure of the crew to hold proper certificates, improper flight planning, improper operating technique, and failure to ascertain weight and balance limitations. This rule should preclude the occurrence of many of these types of accidents. The following table lists some of the accidents involving large airplanes operating under Part 91 which occurred in the period 1972–1979. This table was developed from National Transportation Safety Board data.

* * * * *

Further, the Task Force's recommendation to establish a single set of regulations applicable to large airplanes in noncommon carriage operations is validated by changes in operational concepts which occurred subsequent to the Airline Deregulation Act of 1978. That act substantially relaxes the statutory economic restrictions on air carrier certification and route authority which existed for many years. It encourages competition in the marketplace. One result is that there is now incentive for persons such as commercial operators to enter common carriage operations as air carriers. FAA records show that four commercial operators of large airplanes have become air carriers since the October 1978 effective date of that Act.

Air travel clubs operate large, airline-type airplanes and, as a group, they have experienced significant changes in the short period of time between the issuance of Notice 79-19 and the issuance of this final rule. There were 11 air travel clubs in November 1979 and on May 20, 1980, there were only 7. This reduction implies that the need for air travel clubs, as traditionally constituted, is diminishing in today's environment. The FAA's regulatory program, as revised by Part 125, provides meaningful alternatives for travel clubs. They may seek common carrier certification under Part 121, or, if they do not wish to become common carriers, they may operate under Part 125 which does not restrict the charges which may be made. Current Part 123 defines an "air travel club" as "a person who engages in the carriage by airplanes of persons who are required to qualify for that carriage by payment of an assessment, dues, membership fee, or other similar type of remittance." This limitation on compensation, of course, does not apply under Part 125. This is a substantial benefit to travel clubs. One travel club requests a short-term exemption to permit it to operate in the manner contemplated by Part 125 until the Part becomes effective. That club also states that if Part 125 is not adopted, it intends to seek CAB authority to operate as a supplemental carrier.

Similar revenue opportunities exist under Part 125 for corporate transport and aircraft lease and aviation service operators.

Role of Part 125 in FAA Enforcement Program

Part 125 is an integral part of the FAA's stepped-up enforcement program designed to reduce accidents and enhance compliance with the FAR. Part 125 is aimed primarily at operators who use subterfuges to avoid compliance with appropriate regulations. Part 125 will make it easier to detect these operators and take appropriate enforcement action. It also should serve to deter persons from attempting to evade the regulations because the risk of detection is increased. Other parts of this enforcement program include:

- Numerous large civil penalties collected from large air carriers, commuter/air taxi operators, and manufacturers in 1979.
- Proposed legislation to raise the maximum civil penalty for each FAR violation from $1,000 to $25,000 and to authorize the FAA to seek criminal penalties in flagrant cases.
- Issuance of a new enforcement handbook, which consolidates all enforcement material into one source and contains many new provisions for guidance of FAA personnel.
- Agreement with the Department of Justice on a method to speed up processing of enforcement actions in the courts.
- Development of a computer-based system which will give agency personnel prompt access to an airman's or an operator's compliance record.

* * * * *

PART 91

§ 91.54 Truth in leasing clause requirement in leases and conditional sales contracts.

Since Part 123 will not be revoked as proposed, but continues in effect until January 1, 1983, § 91.54 is amended by inserting the number "125" following the number "123" in § 91.54(b) (1) (ii) of the present rule.

§ 91.181 Applicability.

For the same reasons explained in § 91.54, § 91.181 is amended by adding the number "125" after "123" in paragraphs (a) and (b). The number "123" is retained in both paragraphs.

SUBPART E, PART 91—OPERATING NOISE LIMITS

The preamble to Notice 79-19 states that it does not propose to alter the requirements applicable to any particular aircraft under Part 91, Subpart E, even though it would be included in a new class for purposes of Part 125. The preamble also states that necessary editorial changes would be made to Subpart E on the basis of the Part 125 proposal. Those changes are accomplished in a separate rulemaking action.

* * * * *

ADOPTION OF THE AMENDMENTS

Accordingly, the Federal Aviation Regulations (14 CFR Chapter I) are amended, effective February 1, 1981, by establishing a new Part 125 under Subchapter G and by amending §§ 91.54(b) (1) (i) and (ii); by adding a new paragraph (c) to 91.161 and by amending 91.181(a) of Part 91.

(Secs. 313, 601 through 610, and 1102, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354, 1421-1430 and 1502); sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

Note—The FAA has determined that this document involves a regulation which is significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final regulatory evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "For Further Information Contact."

NOTE: The complete preamble to Amendment 91-169 is contained in new Part 125.

Amendment 91-170

Aircraft Operating Noise Limits for Airplanes Operating Under New Part 125

Adopted: October 2, 1980 **Effective: February 1, 1981**

(Published in 45 FR 67258, October 9, 1980)

SUMMARY: These amendments make necessary changes to apply to new Part 125 operators the aircraft operating noise limits rules of Part 91, Subpart E. Part 125 establishes a uniform set of operating certification and operation rules for U.S. registered, large airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more when used for any purpose other than common carriage. The operation of some of those airplanes prior to the effective date of Part 125 is governed by the noise limit rules applicable to their operation under Parts 91, 121, 123, 129, or 135. The Part 125 Notice proposed not to change the applicability of the noise rules to the operation of the affected airplanes after they become subject to Part 125. It stated that necessary editorial changes would be made to the noise rules on the basis of the Part 125 proposal. These amendments are part of the implementation of new Part 125 and are necessary to ensure that the noise control and abatement benefits of Part 91, Subpart E, are not reduced or lost through the adoption of new Part 125.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard N. Tedrick, Noise Policy and Regulatory Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, 800 Independence Ave., S.W., Washington, D.C. 20591; Telephone: (202) 755-9027.

SUPPLEMENTARY INFORMATION:

Background of this Rulemaking Proceeding

These amendments result from a Notice of Proposed Rulemaking (Notice No. 79-19; 44 FR 66324; November 19, 1979). That Notice proposed a new Part 125 to provide a uniform set of operating certification and operation rules for all U.S. registered large airplanes certificated to carry 20 or more passengers or a maximum payload of more than

5,000 pounds other than when engaged in common carriage or agricultural aviation operations. In response to comments, the proposed 5,000 pound payload applicability base has been revised to 6,000 pounds, as discussed in the amendment adopting new Part 125. A full statement of the need for new Part 125 is contained in Notice No. 79-19 and also in the amendment adopting new Part 125 which is issued simultaneously with these amendments to Part 91, Subpart E.

In short, new Part 125 substantially upgrades the level of safety formerly applicable to the affected airplanes under Part 91. It also achieves regulatory simplification and ease of enforcement by applying a single set of regulations to the specified size of airplanes without regard to how they are used, except that common carriage operations are not covered. It is intended that new Part 125 will eliminate difficulties in regulatory interpretation which have been experienced by members of the public, operators, and FAA inspectors, particularly with respect to application of the "compensation or hire" test which is eliminated by new Part 125 with respect to airplanes subject to its provisions. The adoption of new Part 125 is the final step in a regulatory upgrade and modernization program recommended by the Secretary of Transportation.

Relationship of Subpart E to Part 125

Part 91, Subpart E prescribes among other things, aircraft operating noise limits rules applicable to certain civil subsonic turbojet powered airplanes with maximum weights over 75,000 pounds and to certain civil supersonic airplanes that are operated in air commerce in the United States. Some of the airplanes subject to new Part 125 are airplanes covered by Subpart E. However, the applicability of Subpart E is keyed, in part, to that Part of the Federal Aviation Regulations under which the airplane is operated, that is, Parts 91, 121, 123, 129, and 135. Some airplanes previously operated under those Parts are subject to Part 125 on its effective date in accordance with compliance dates which it establishes.

Notice No. 79-19 proposed not to alter applicable operating noise limits rules for airplanes proposed to be covered under new Part 125. That Notice stated that "... necessary editorial changes will be made to Subpart E on the basis of the [Part 125] proposal." One person commented on the noise aspects of the Part 125 proposal and concurred that the final rule should accomplish the result quoted above from the Notice.

Description of Amendments

Necessary amendments are made to Part 91, Subpart E, to specify its applicability to operations of affected airplanes under Part 125. These airplanes are governed by a new § 91.302 which designates the applicable regulations. Airplanes already subject to requirements in Parts 91, 121, 123, 129, and 135 before November 1, 1980, remain subject to those requirements, including phased compliance for subsonic airplanes operated under Part 121 and 135. Subsonic airplanes not operating in the United States under either of those parts before November 1, 1980, are subject to the same requirements as those previously applicable to Part 91 and 123 operators, including the timely submission of compliance plans under § 91.308. Phased compliance requirements do not apply to those airplanes. Supersonic airplanes operated under Part 125 must comply with the provisions of §§ 91.309 and 91.311.

November 1, 1980, is the operative date for designation of applicable regulations under Subpart E of Part 91 in order to preclude changes in operations between that date and the Part 125 effective date which would have the effect of evading the specified requirements.

Notwithstanding the provisions of Part 125 permitting the approval of deviations from the other requirements of that Part, the noise requirements applicable to the operation of affected airplanes would not be changed by that approval. It should be noted that some of the amendments to Subpart E, which will implement the Aviation Safety Noise Abatement Act of 1979, apply to all aircraft, when adopted, regardless of the part under which they are operated.

ADOPTION OF THE AMENDMENT

Accordingly, Part 91, Subpart E, is amended, effective February 1, 1981.

(Secs. 307, 313(a), 601, 603, 604, and 611, Federal Aviation Act of 1958 (49 U.S.C. 1348, 1354(a), 1421, 1423, 1424 and 1431)); sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)); Title III, Aviation Safety and Noise Abatement Act of 1979 (94 Stat. 50).

Note—The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the regulatory evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified above, under the caption "For Further Information Contact."

Amendment 91-170A

Aircraft Operating Noise Limits for Airplanes Operating Under New Part 125: Amended Date of Designation of Applicable Rules

Adopted: November 17, 1980 Effective: February 1, 1981

(Published in 45 FR 79302, November 28, 1980)

SUMMARY: On October 9, 1980, the FAA published its final rule (Amendment No. 91-170) concerning the operating noise limits rule for certain aircraft operated under new Part 125, which becomes effective February 1, 1981 (45 FR 67258). That rule designates the provisions of the noise rule that apply to particular airplanes on a specified date before Part 125 becomes effective. The date of November 1, 1980, was used because the proposed amendments to the aircraft operator noise rule that are required to implement Title III of the Aviation Safety and Noise Abatement of 1979 (Notice No. 80-7) were scheduled to be effective before that date and must be reflected in the noise requirements for those affected airplanes operated under Part 125. However, issuance of those amendments has been delayed and, the date of November 1, 1980, is no longer viable to achieve the intended result. This action amends the date of designation of applicable rules in new § 91.302, adopted in Amendment No. 91-170 to read "November 29, 1980," the day after the amendments to Subpart E of Part 91 implementing Title III of the Aviation Safety and Noise Abatement Act of 1979 became effective.

Comments must be received on or before March 1, 1981.

ADDRESSES: Send comments on the rule in duplicate to:

Federal Aviation Administration,
Office of the Chief Counsel,
Attn: Rules Docket (AGC-204), Docket No. 20813,
800 Independence Avenue, SW.,
Washington, DC 20591;

OR deliver comments in duplicate to:

FAA Rules Docket, Room 916,
800 Independence Avenue, SW.,
Washington, DC.

Comments may be examined in the Rules Docket, weekdays except Federal Holidays, between 8:30 a.m. and 5:00 p.m.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard N. Tedrick, Noise Policy and Regulatory Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Ave., SW., Washington, DC 20591; telephone (202) 755-9027.

SUPPLEMENTARY INFORMATION:

REQUEST FOR COMMENTS ON THE RULE

Although this action is in the form of a final rule, comments are invited on the rule. It involves amendments to the provisions that designate applicable rules under § 91-302 to achieve the intended effect discussed in the preamble to Amendment No. 91-170; thus, it was not preceded by further notice and public procedure. When the comment period ends, the FAA will use any comments received, together with other available information, to review the regulation. After the review, if the FAA finds that changes are appropriate, it will initiate rulemaking proceedings to amend the regulation. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in evaluating the effects of the rule and determining whether additional rulemaking is needed. Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule.

Since the subjects and issues involved in this amendment, were already subject to notice and public procedure on the proposed rule, and this amendment is necessary to achieve the regulatory effects contemplated at the time of issuance of the final rule, I find that further notice and public procedure before issuing this amendment is not necessary.

ADOPTION OF THE AMENDMENT

Accordingly, § 91.302 of Part 91 of the Federal Aviation Regulations (14 CFR Part 91) as adopted in Amendment 91-170 (45 FR 67259; October 2, 1960), is amended, effective February 1, 1981, by deleting the words "November 1, 1980," in each place they appear and by substituting for them the words "November 29, 1980,".

(Secs. 307, 313(a), 601, 603, 604, and 611, Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a), 1421, 1423, 1424, and 1431); Sec. 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)); Title III, Aviation Safety and Noise Abatement Act of 1979 (94 Stat. 50).

NOTE: The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Since this regulatory action involves amendments that are corrective and editorial in nature and are needed to achieve the substance of the regulation contemplated under the final rule, the anticipated impact is so minimal that it does not warrant preparation of a separate regulatory evaluation.

Amendment 91-171

Operating Noise Limits for Certain Turbojet Airplanes Engaged in Domestic or Foreign Air Commerce in the United States

Adopted: November 17, 1980 **Effective: November 28, 1980**

Compliance dates are summarized under the caption "II SYNOPSIS OF THE AMENDMENTS" and are detailed in the respective discussions of the rule.

(Published in 45 79302, November 28, 1980)

SUMMARY: This action amends the operating noise limits rule for airplanes engaged in United States domestic or foreign air commerce. That rule applies to operators of civil subsonic turbojet powered airplanes having maximum weights of more than 75,000 pounds and standard airworthiness certificates or their equivalents. Those aircraft, whether of U.S. or foreign registry, are required to comply with at least "Stage 2 noise levels" under Part 36 of the Federal Aviation Regulations in order to be operated to or from airports in the United States after specified dates. The Administrator intends to accept certain demonstrations of noise level compliance under portions of ICAO Annex 16 noise standards that are found to be substantially compatible with, and achieve results equivalent to those achievable under, Part 36 noise requirements. These amendments are adopted under § 611 of the Federal Aviation Act of 1958, as amended, to reflect Title III of the recently enacted Aviation Safety and Noise Abatement Act of 1979 (Pub. L. 96-193; 94 Stat. 50).

These amendments apply to foreign operators the same noise level requirements applied to U.S. operators and generally require final compliance by 1985. Statutory extensions of the compliance dates under specified terms and conditions are also implemented for both U.S. and foreign operators. Those statutory provisions provide an additional incentive to replace noncomplying two-engine and three-engine airplanes with the quieter "Stage 3 airplanes" and limited exemptions for two-engine airplanes to protect air transportation services to small communities in the United States.

In the preamble to the operating noise limits rule adopted in 1976, the FAA announced its intention to take additional regulatory action, if an international agreement were not reached before 1980 on international operating noise requirements and a compliance schedule for achieving either the U.S. noise levels (FAR Part 36) or the international noise levels (ICAO Annex 16). The recently enacted Aviation Safety and Noise Abatement Act of 1979 reflects that policy statement and requires completion of portions of this regulatory action, in accordance with the Act.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard N. Tedrick, Noise Policy and Regulatory Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone: (202) 755-9027.

SUPPLEMENTARY INFORMATION:

I. REGULATORY HISTORY

On April 14, 1980, the Federal Aviation Administration (FAA) published Notice No. 80-7 (45 FR 25355) proposing to amend Part 91 Subpart E, "Operating Noise Limits". That Notice proposed the amendments described and discussed below to implement the provisions of Title III of the recently enacted Aviation Safety and Noise Abatement Act of 1979. Interested persons were invited to participate in this rulemaking by submitting written comments to the Rules Docket on the proposals contained in that Notice. All comments received have been given full consideration in the promulgation of this amendment. Except as discussed below, this amendment adopts the proposals in Notice No. 80-7 without substantive change.

Pursuant to § 611(b) (1) of the Federal Aviation Act of 1958, as amended, the FAA has consulted with the Secretary of Transportation and the U.S. Environmental Protection Agency (EPA) prior to the adoption of this amendment. An environmental assessment regarding this amendment has been prepared in accordance with the National Environmental Policy Act of 1969, and implementing regulations and directives. Also, submission of this amendment to the EPA is in accordance with § 309 of the Clean Air Act, as amended (42 U.S.C. § 1857h-7), and the regulations of the Council on Environmental Quality (40 CFR Part 1500).

Part 36 of the Federal Aviation Regulations "Noise Standards: Aircraft Type Certification" (34 FR 18355; November 18, 1969), which became effective December 1, 1969, originally prescribed noise measurement, evaluation, and level requirements for the issuance of type certificates, and changes to those certificates, for subsonic transport category large airplanes and for subsonic turbojet engine powered airplanes regardless of category and weight. That regulation initiated the regulatory, noise abatement program of the FAA under the statutory authority of Public Law 90-411 (July 21, 1968), which added § 611 to the Federal Aviation Act of 1958 (the "FA Act").

On December 17, 1976, after consultations with the Secretary of Transportation and the Administrator of the EPA, the FAA adopted Amendment 91-136 which added Subpart E to Part 91 (41 FR 56046; December 23, 1976). Prior to this amendment, Subpart E applied to U.S. registered civil subsonic airplanes with maximum weights of more than 75,000 pounds and having standard airworthiness certificates. It requires, as a condition to continuing operation after certain dates, that airplanes be shown to comply with the noise levels of Part 36. A phased compliance schedule applies to airplanes engaged in commercial and air carrier operations. Interim compliance dates of January 1, 1981, and January 1, 1983, apply to specified portions of those operators' fleets. Final compliance for all airplanes is required before January 1, 1985. Special provisions govern replacement of existing airplanes, apportionment of an operator's fleet between domestic and foreign commerce, and the limitation on the permissible use of the tradeoff provisions in Part 36 (§ C36.5(b)).

On December 13, 1979, after consultations with the Secretary and the EPA, the FAA adopted Amendment 91-161, entitled "Aircraft Operating Noise Limits: Compliance Plans and Expanded Definition of 'Replacement Airplanes' " (44 FR 75558; December 20, 1979; and 45 FR 6924; January 31, 1980). That amendment (1) redefines "replacement airplanes" to allow credit under the rule for certain reengined airplanes, and (2) requires periodic submission to the FAA of fleet operator compliance plans and status reports for achieving and maintaining compliance under the rule.

II. SYNOPSIS OF THE AMENDMENTS

A. General Compliance Requirements

The purpose of these amendments is to bring Subpart E of Part 91 of the Federal Aviation Regulations (14 CFR Part 91) into conformance with Title III of the Aviation Safety and Noise Abatement Act of 1979 (Pub. L. 96-193; 94 Stat. 50; hereafter referred to as the "ASNA Act"). These amendments apply to airplane operators engaged in domestic or foreign air commerce in the United States. They cover civil subsonic turbojet engine powered airplanes with maximum weights of more than 75,000 pounds, regardless of the State of registry. They require compliance with specified noise levels under Part 36 (including the permissible use of tradeoff provisions) as a condition of operating to or from airports in the United States after specified dates. For subsonic airplanes engaged in foreign commerce, the Administrator may accept as complying noise levels under the rule the noise requirements applied to the airplane under the International Civil Aviation Organization (ICAO) Annex 16 when those requirements are shown to be substantially compatible with, and achieve noise levels equivalent to those achievable under, Part 36. Chapter 3 of ICAO Annex 16 is, for example, the practical equivalent of current Part 36 Stage 3 noise requirements. Also, ICAO Annex 16, Chapter 2, for four-engine airplanes is a practical equivalent of the Stage 2 noise requirements for those airplanes with engines that do not have a high bypass ratio; it does not generally achieve results equivalent to current Part 36 Stage 2 noise requirement for other airplanes. However, as applied to specific airplanes, that equivalency might be established.

Unless scheduled for replacement under a FAA approved plan or covered by a "service to small communities" or other exemption, each affected airplane must be shown to comply with the applicable Stage 2 or Stage 3 noise levels under Part 36 or it may not be operated in the United States on and after the following dates:

January 1, 1981—

a. At least one quarter of the airplanes operated by each operator in domestic air commerce that have four engines with no by-pass ratio or a by-pass ratio less than two; and

b. At least half of the airplanes powered by engines with any other bypass ratio or by another number of engines and engaged in domestic air commerce.

January 1, 1983—

a. At least one half of the airplanes operated by each operator in domestic air commerce that have four engines with no by-pass ratio or a by-pass ratio less than two; and.

b. All the airplanes powered by engines with any other bypass ratio or by another number of engines and engaged in domestic air commerce.

January 1, 1985—

All airplanes engaged in domestic or foreign commerce in the United States, regardless of the State of registry.

U.S. operators of affected airplanes engaged in both domestic and foreign air commerce may elect to apportion those airplanes between the two types of operations in accordance with a FAA approved method of apportionment. (No need to apportion exists for foreign operators.)

Foreign operators of airplanes covered by the rule must achieve full compliance by January 1, 1985, for those airplanes operated to or from airports in the United States. However, those operators are eligible for the same extensions of compliance dates that are available to U.S. operators. Those provisions of the rule are summarized in the following discussion.

B. Extensions of Compliance Dates

The compliance date for a particular airplane may be extended under an approved replacement plan or a "service to small communities exemption," subject to a number of eligibility and termination requirements specified in the ASNA Act. Those dates specified are as follows:

After January 1, 1983—

A service to small communities exemption covering a two-engine airplane expires on the date of delivery to another person of an exempted two-engine airplane that is sold, or otherwise disposed of, to that other person.

On or before January 1, 1985—

a. The authority to continue operations under an approved replacement plan, for the replacement of a three-engine or four-engine airplane expires on January 1, 1985, or on an earlier date specified in the plan; and

b. A service to small communities exemption covering a two-engine airplane with more than 100 passenger seats expires on January 1, 1985, unless the airplane is earlier sold, or otherwise disposed of, to another person.

On or before January 1, 1986—

The authority to continue operations under an approved replacement plan for the replacement of a two-engine airplane expires on January 1, 1986, or on an earlier date specified in the plan.

On or before January 1, 1988—

A service to small communities exemption covering a two-engine airplane with 100 passenger seats or less expires on January 1, 1988, unless the airplane is earlier sold, or otherwise disposed of, to another person.

To be eligible for approval of a plan for the replacement of two-engine and three-engine airplanes that would allow operations until the dates discussed above, an operator must enter into a binding contract before January 1, 1983, that specifies delivery of a "Stage 3 airplane" before the applicable compliance date. Approval of a plan will be considered if the replacement airplane achieves noise levels equivalent to a "Stage 3 airplane" because it has been certificated under ICAO Annex 16, Chapter 3. Approval of a replacement plan for any other airplane continues to be governed by the rule in effect before this amendment which allows operations until a date before January 1, 1985, when a plan (approved before the applicable phased compliance date) provides for a replacement airplane that either (1) has been shown to be a Stage 2 airplane before issuance of its original standard airworthiness certificate; or (2) has been reengined, or otherwise modified, and shown to be a Stage 3 airplane under Part 36. After the expiration of an exemption or the authority to continue operations under an approved replacement plan, compliance with Part 36 noise levels must be shown and maintained in order to operate that airplane in the United States.

For purposes of the service to small communities exemption for two-engine airplanes, the seat configuration of the airplane is governed by that seating capacity shown to exist on December 1, 1979, or an earlier date established for that airplane by the Administrator.

In bringing those affected operators engaged in foreign air commerce in the United States under Subpart E of Part 91, this amendment applies the same Part 36 noise limits and other requirements currently applicable under Subpart E. It also applies to all operators the provisions governing the service to small communities exemption and the authority to continue to operate a "Stage 1 airplane" under an approved replacement plan. For the reasons discussed later, as a potentially acceptable alternative, it allows operators of certain subsonic airplanes engaged in foreign air commerce to demonstrate that their airplanes comply with international noise standards (such as ICAO Annex 16, Chapter 3) if those standards are substantially compatible with, and achieve noise levels equivalent to those achievable under, Part 36.

Operators of aircraft in foreign air commerce are also reminded that in accordance with FAR Part 11 and § 611 of the FA Act, the Administrator may grant exemptions in the public interest from the FAA's noise control and abatement regulations. In considering the public interest, the Administrator reviews the need to provide air transportation services to those airports that would be affected. The Administrator also considers the factors contributing to a fair and reasonable access to U.S. airports by both domestic and foreign operators under substantially compatible requirements to achieve the requisite equivalent noise level reductions at those airports. Exercise of that discretionary authority, pursuant to § 611, ensures full consideration of the particular matters presented by a petitioner for relief from specific provisions of the regulation. The Administrator considers, among other things, whether the regulation, as applied to the petitioner, is economically reasonable, technologically practicable, and appropriate to the particular type of aircraft affected under the circumstances presented. It should be noted that under § 611, the FAA is required to consult with the Environmental Protection Agency and the Secretary of Transportation before granting an exemption from the rules. To ensure an adequate opportunity for review of any requests for exemption from operators engaged in foreign air commerce, and for operators to achieve compliance when any petition is denied, requests should be filed as early as practicable but no later than April 1, 1984. In reviewing requests for exemption applicable to an operator's service to the United States pursuant to a bilateral agreement, the FAA will consider whether there has been a demonstration that the service would be jeopardized without relief from the regulation. The Administrator will also consider the extent to which the applicant's compliance with ICAO Annex 16 noise requirements achieves results equivalent to those achievable under current Part 36 noise requirements.

This amendment revokes the current provision in Subpart E that limits use of Part 36 tradeoff provisions in demonstrating compliance with required Part 36 noise levels.

III. AIRCRAFT NOISE RULES

Public Laws 90-411, 92-574, 95-609, and 96-193 were enacted to provide the statutory basis for promulgating regulations providing present and future relief and protection to the public health and welfare from noise and sonic boom from civil aircraft. Under § 611 of the FA Act, the FAA, after consultation with the Secretary of Transportation and the Administrator of the Environmental Protection Agency, is responsible for the adoption and amendment of rules which prescribe the necessary standards and regulations.

Since the adoption of Part 36 in 1969, the FAA has issued a number of other notices proposing amendments to its provisions and, subsequent to notice and public procedure, has adopted those amendments which have been found to be consistent with the provisions of § 611 of the FA Act. Those amendments have increased the protection of the public health and welfare by providing the necessary control and abatement of aircraft noise and sonic boom. In addition to the FAR Part 36 airplane noise certification rules, the FAA has adopted rules governing how airplanes should be operated for noise control purposes. On March 28, 1973, the FAA published an amendment to Part 91 (Amendment 91-112; 38 FR 8051) to prohibit unauthorized operation of civil aircraft at supersonic speeds over the United States. Amendment 91-134 (41 FR 52388; November 29, 1976), amended Part 91 for noise abatement purposes to require that a pilot in command of a civil turbojet-powered airplane use the lowest authorized flap setting consistent with safety. Amendment 91-136 (41 FR 56046; December 23, 1976) as previously discussed, added Subpart E to Part 91 to require phased compliance with the Part 36 noise limits by U.S. registered, civil subsonic turbojet engine powered airplanes with maximum weights of more than 75,000 pounds having standard airworthiness certificates and engaged in air commerce in the United States. Amendment 91-153 (43 FR 28406; June 29, 1978) strengthened the prohibition on sonic booms under § 91.55 and amended Subpart E to prohibit the operation to and from U.S. airports of all civil supersonic aircraft, except a limited number of Concorde SSTs, that do not meet FAR Part 36 noise standards. Amendment 91-161, as previously discussed, amended Subpart E to allow replacement credit during the phased compliance period for certain re-engined airplanes shown to comply with Stage 3 noise levels and to require U.S. operators to submit compliance plans and status reports under the rule.

IV. NEED FOR REGULATION

As discussed in Notice No. 80-7, operations by U.S. and foreign operators engaged in foreign air commerce create a significant noise impact at the international airports. Because of their longer flight distances, which require more fuel, international flights normally operate at higher gross weights and create higher noise levels during takeoff. The noise impact increases as operations increase and will become more significant by 1985 when, under existing rules, most U.S. airplanes used in domestic service must meet at least the Stage 2 noise levels of Part 36. Also, additional "gateway" cities are receiving international operations as more international routes are awarded.

In the Aviation Noise Abatement Policy issued by DOT/FAA on November 18, 1976, and again in the preamble to Subpart E, the FAA stated that U.S. regulatory action would be taken in the event an agreement for compliance was not reached in the ICAO by 1980. Such an agreement has not been reached. In fact, in May 1979, during their 97th session, the ICAO Council decided to request all member States to take no action before January 1, 1988, and then to limit any prohibition of operations by non-complying airplanes only at the most noise sensitive airports. Since U.S. airports that are served by international flights tend to be among the largest and busiest U.S. airports, the noise impact on those airports is also among the most serious.

In light of the noise control and abatement objectives of § 611 of the FA Act and as a result of the recently enacted ASNA Act, the FAA must proceed with rule making requiring compliance by 1985 unless, for a limited period, an airplane is specifically excepted or exempted. At the same time, the FAA is fully aware of the expectations of foreign air carriers and commercial operators that 1985 would be the earliest noise compliance date they would face in the United States if the ICAO mechanism did not produce an agreement by January 1, 1980.

Without action to mitigate the noise contribution of airplanes engaged in foreign air commerce, the current rule (which does not apply in all cases to those aircraft) provides only partial relief, and places the responsibility for airport noise reduction primarily on the operators of U.S. registered aircraft not engaged in foreign commerce.

As a result of the impact of aircraft noise on airport neighbors, serious pressures have developed that could threaten the continued growth of healthy national and international air transportation systems. Those pressures have led to restrictions on airport usage such as curfews, restrictions on the use of certain aircraft, opposition to airport development and serious liability exposure for existing airports.

To provide an overall perspective, consider that there are over 13,000 public airports operating in the United States. Those airports vary widely in their size, closeness to populated areas, and aircraft mix. Some of those airports are among the busiest in the world, with 84 airports having more than 200,000 annual operations, 160 airports having more than 150,000 operations each year, and well over 200 airports having more than 100,000 annual operations. The busiest airports are generally located in the vicinity of the larger metropolitan areas and, thus, affect a significant number of people.

Underlying this amendment to Part 91 of the Federal Aviation Regulations are several years of study by the FAA of the considerations and objectives of § 611 of the FA Act and the recently enacted statutory mandate. The conclusion is that, both from the standpoint of the quality of life in hub airport environments and from the standpoint of the preservation of strong national and international air transportation systems, Federal action is required to ensure that all aircraft operated to and from airports in the United States achieve noise levels at least equivalent to current Part 36 ("Stage 2") noise requirements.

V. TITLE III, AVIATION SAFETY AND NOISE ABATEMENT ACT OF 1979

Title III of the ASNA Act of 1979 requires the Secretary of Transportation, acting through the Administrator of the FAA, to make certain changes in the aircraft operating noise limits rule contained in Subpart E of Part 91. This amendment contains those required changes, outlined as follows:

Section 302 requires the completion of rulemaking to require both foreign and domestic operators engaged in foreign air commerce to comply with rules comparable to those currently contained in FAR Part 91, Subpart E. Under that section, the rulemaking would have had to conform to any pertinent agreement reached through the International Civil Aviation Organization (ICAO) by January 1, 1980. Although such an agreement was not reached, that section also permits the rules to require operators engaged in foreign commerce to comply with either the present domestic rule (contained in Parts 36 and 91) or ICAO Annex 16, if the Annex 16 standards "are substantially compatible" with the rule contained in Parts 36 and 91. Thus, the FAA will examine, on a case-by-case basis, any requests for a determination of equivalency. It will determine whether, as applied to specific airplane models, the noise requirements of ICAO Annex 16 are substantially compatible with, and achieve results equivalent to those achievable under, current Part 36. Thus, this amendment requires compliance with the same noise requirements for all operators engaged in foreign air commerce in the United States, regardless of whether the operator is U.S. or foreign and regardless of the State of manufacture or registry of the airplane.

Section 303 provides a "new technology aircraft incentive" by permitting continued operation of noncomplying ("Stage 1"), two-engine and three-engine airplanes until no later than January 1, 1986, and January 1, 1985, respectively, if the airplane will be replaced by a "Stage 3 airplane." To qualify, the operator must have an FAA approved replacement plan based on a binding contract entered into before January 1, 1983, specifying a delivery date for the replacement airplane before the applicable compliance date.

Section 304 entitled "small community service exemption" provides for issuance of exemptions to operators of noncomplying ("Stage 1"), two-engine airplanes to provide air transportation services. Those exemptions expire on January 1, 1988, for airplanes with 100 passenger seats or less, and on January 1, 1985, for airplanes with more than 100 passenger seats (as those airplanes were configured on December 1, 1979, or at an earlier date established for any particular airplane). If an airplane covered by an exemption is sold, or otherwise disposed of, to another person after January 1, 1983, it is no longer exempted and is subject to the requirements that the airplane be brought into compliance before further operations in the United States.

Section 305 rescinds the current limitation in Subpart E concerning the permissible use of noise level "tradeoffs" when demonstrating compliance with Part 36.

VI. COMMENTS AND RESPONSES

The FAA received 42 comments from a broad spectrum of interested persons in response to Notice No. 80-7, including domestic and foreign governmental bodies, aviation industry and trade organizations, and airplane operators, and airport owners and operators. Some commenters supported the proposals, particularly those granting relief from the original compliance schedules for two-engine and three-engine airplanes. Most foreign commenters objected strongly to extending the operating noise limits to foreign registered airplanes operated by foreign operators engaged in air commerce in the United States. Comments and FAA's response to them are discussed as follows:

Applicability to Airplanes Engaged in Foreign Air Commerce.

Fourteen comments were received; most objected to the proposal to require foreign registered aircraft to meet the requirements of Subpart E of FAR Part 91. The commenters expressed their belief that matters affecting the economic operation of international air transport services should be resolved multilaterally, rather than through unilateral action by a single nation. In that connection, most of these commenters expressed their belief that noise standards affecting international operators should be developed by the International Civil Aviation Organization (ICAO).

One commenter (the Government of the United Kingdom) is representative of those views in stating:

> "Civil aviation is an international activity, and cooperative efforts are essential to ensure both efficient air transport operations and the orderly development of international civil aviation. The chief forum for this cooperation is the International Civil Aviation Organization (ICAO) . . . It has been a common principle of action in this field that, while states may naturally introduce whatever regulations they wish for aircraft on their own national register, they should not introduce regulations for foreign-registered aircraft in the absence of international agreement."

The FAA basically agrees with these statements of principle, preferring requirements based on international agreement. In the Aviation Noise Abatement Policy issued on November 18, 1976, the DOT/FAA stated:

> "The United States will seek early agreement through the International Civil Aviation Organization (ICAO) on noise standards and an international schedule for compliance with Annex 16 or Part 36. In the event that agreement is not reached within three years, from January 1, 1977, then regulatory action will be taken to require all airplanes operated by all international operators to meet the noise level standards of Part 36 or Annex 16 during the five-year period thereafter at a phased rate of compliance similar to that established for domestic operations. The ultimate

requirements applied to U.S. international flag carriers will not be any more stringent than those applied to foreign competition. Where U.S. air carriers serve both domestic and foreign routes, the delayed international requirements will be applied only for that percentage of total operations that are in international service. These requirements may be superseded by agreement reached through ICAO, in which the United States concurs and which does not discriminate against U.S. carriers." (That policy statement is reflected in § 302 of the ASNA Act as statutory mandate.)

For the above reasons, application of Subpart E to aircraft engaged in foreign air commerce was effectively delayed for three years to give ICAO additional time to reach agreement. As adopted in 1976, Subpart E did not apply to foreign registered aircraft, while operators of U.S. registered aircraft engaged in foreign air commerce could elect to apportion their fleets. However, in accordance with the above stated policy and in accordance with § 302 of the ASNA Act, overriding concern for the health and welfare of the Nation's citizens and fairness to the Nation's domestic operators requires that in the absence of international agreement, the United States proceed with appropriate rules for operating in the United States.

Many commenters asserted that, indeed, there had been an international agreement reached through ICAO. Indeed, enormous efforts were made within ICAO to resolve this question. However, on May 9, 1979, the Council of ICAO transmitted (by the Secretary General's June 19, 1979, letter AN 1/54.7-79/106) a request that all contracting states:

> "(a) Not prohibit before January 1, 1988, the operation of foreign registered subsonic jet aeroplanes not conforming to the noise certification standards of Chapter 2, Part II of Annex 16 (Third Edition) into and out of their territories;
>
> "(b) Limit prohibition of operations to those airports which have been identified by them as having noise problems and have been so declared through appropriate means and to inform ICAO accordingly."

No vote was taken in the ICAO Council; the decision was developed by consensus. Reservations of endorsement were recorded regarding the date in the first paragraph by the representatives of Canada, the Federal Republic of Germany, Japan, and the United States. The representative of the People's Republic of China recorded his abstention to the action as a whole.

The FAA does not agree that the ICAO Council decision constitutes the agreement contemplated by the 1976 policy statement or that it constitutes "noise standards and an international compliance schedule" as contemplated by § 302 of the ASNA Act. It proposes no action until 1988. It is silent on any actions during or after 1988 and, therefore, does not meet the stated needs of the United States as enunciated by the FAA and Department of Transportation more than three and a half years ago. Accordingly, the United States must proceed to regulate airplane operations under U.S. law.

One international aviation body, the European Civil Aviation Conference (ECAC), reported on its earlier efforts to negotiate among members a different type of fleet noise level limitation. Their suggestion was to "offset" a limited number of noisy aircraft through the use of quieter aircraft. Their comment suggested that the FAA might consider this or some similar method as a basis for "finding a mutually satisfactory arrangement." While the FAA is considering several cumulative noise evaluation systems (in a separate regulatory action required by Title I of the ASNA Act) for use around U.S. airports, it is not practical at this time to apply that type of methodology to the regulation of aircraft fleet composition on a nation-by-nation or airline-by-airline basis.

The International Air Transport Association (IATA) suggested that the FAA could adopt the rule as proposed but add a clause to the effect that the rule would not apply where it is inconsistent with an obligation assumed by the United States to a foreign country in a treaty, convention or agreement. The United States would then, in good faith, negotiate mutually acceptable compliance dates with foreign governments, individually or collectively, covering their carriers who serve airports in the United States.

The FAA notes that the suggested additional clause is unnecessary since most regulations (not just Subpart E of Part 91) can be superseded by international agreement.

Use of Part 36 or Annex 16 Noise Levels.

Sixteen comments addressed the issue of using either FAR Part 36 or ICAO Annex 16 certificated noise levels to determine compliance under Subpart E for foreign operators. Fourteen of those urged the use of Annex 16, while two suggested that compliance with either noise standard should be accepted under the rule.

Several reasons were advanced for adopting the Annex 16 method and levels. One stated that even if the objections to unilateral action did not exist, or can be resolved satisfactorily, it would be essential for the United States to accept the international standards for foreign-registered aircraft contained in ICAO Annex 16, Chapter 2, specifically the noise levels.

The commenters questioned the justification in the preamble to the notice for requiring Part 36 levels, stating it was "feeble and contains errors of logic." The commenters felt that in pointing to technical differences between Part 36 and Annex 16, the FAA failed to recognize that in practice those differences are "imperceptible." The commenters felt that while Annex 16 does not include operational requirements like those in Part 91, Subpart E, the preamble failed to note either that neither does Part 36 (which is the U.S. national "equivalent" of Annex 16) or that Annex 16 was referred to in the ICAO Council's May 9, 1979, request. The commenters stated that the preamble to the notice suggests that use of Annex 16 for the international portion of the U.S. rule could, for some U.S. operators, create two distinct fleets, but fails to recognize that use of Part 36 would, for some foreign operators already operating Annex 16 airplanes, create a second distinct fleet of the same type having to meet the U.S. requirements. The commenters frequently contended that use of Annex 16 would not tend to reduce the protection to the public health and welfare intended by the proposal, that the differences in reduction are effectively nonexistent, and that the proposed rule ignores the clear intent of Congress that Annex 16 be the standards applied to foreign air carriers, regardless of whether or not the U.S. accepts that ICAO has reached an agreement on the matter.

The FAA appreciates the views expressed in these comments. However, it should be noted that FAR Part 36 and ICAO Annex 16 are not competing or fundamentally differing aircraft noise standards. They are, indeed, a part of the same carefully coordinated international regulatory fabric. The Chicago Convention established the basic framework for close international cooperation in the development of a broad range of aviation standards, including noise. Article 37 of the convention commits each signatory to collaborate in securing the highest practicable degree of uniformity in international standards, such as Annex 16. However, Article 38 provides that any State which considers it necessary to adopt regulations or practices differing from those established by an international standard need only notify the ICAO of those particular differences. Article 38 thereby recognizes the right of any State to adopt regulations differing from those in an ICAO standard. In this connection, in certain respects, Annex 16, Chapter 2, is less stringent than the "Stage 2" noise requirements of Part 36 for two- and three-engine airplanes but achieves equivalent results for airplanes with four engines that do not have a high bypass ratio.

The United States has been, and remains an active contributor and participant in the development of Annex 16. As a result, Annex 16 and Part 36 share more characteristics than those in which they differ. They use the same noise unit and, generally, the same noise tests. In adopting the more stringent standards for new types of airplanes, both ICAO and the FAA promulgated nearly identical rules. As a result, ICAO Annex 16, Chapter 3, and FAR Part 36 "Stage 3" noise limits and test procedures are "substantially compatible" under the meaning of the ASNA Act of 1979. The two achieve the equivalent results. Therefore, it is the intent of the FAA to accept from operators engaged in foreign air commerce demonstrations of compliance with Chapter 3 of Annex 16 as meeting the noise requirements of Subpart E of Part 91. Of course, that accommodation does not waive or otherwise modify other requirements to demonstrate literal compliance with

Part 36, such as actual certification for the issuance of U.S. type certificates and standard airworthiness certificates.

Other portions of Annex 16 are not "substantially compatible" with the corresponding requirements of Part 36 and do not assure equivalent results. Significant differences occur in test conditions, test equipment, and microphone locations, but the most important differences are in how the airplanes are flown during noise tests. Annex 16 allows engine power to be cut below that power allowed during Part 36 testing. Further, the Annex allows this cutback to be applied to two-engine and three-engine aircraft earlier than would be allowed under the U.S. specifications. For example, those differences, when applied to several widely used airplanes, could result in masking the following increases in takeoff noise level:

	Takeoff
B-727	3.9 dB
B-737	4.5 dB
DC-9	4.9 dB
A-300	2.5 dB
BAC-1-11-500	5.5 dB

Further, increases of 1.5 to 2.5 decibels (dB) and 0.3 to 0.4 dB could occur on sideline and approach. An additional 1.0 dB tradeoff would also be allowed between takeoff, sideline, and approach noise measurements. Clearly, whether or not such increases were applied for these particular airplanes, standards that would allow such differences cannot be said to be "substantially compatible" or equivalent in results. Details of the technical differences between the two standards are presented in the following table. It also presents a quantitative approximation of the impact of each difference in terms of certification noise levels and noise-limited takeoff gross weights.

ICAO ANNEX 16, CHAPTER 2/FAR 36 (IN EFFECT ON JANUARY 1, 1977), STAGE 2 DIFFERENCES RELATED TO NOTICE NO. 80-7

FAR 36, Stage 2	ICAO Annex 16, Chapter 2	Estimated Impact of Differences
FAR 36, Appendix A	*Appendix 1, Annex 16*	
1. A36.1(b)(3). Ambient temperature test day lower limit 41°F.	2.2.3. Ambient temperature test day lower limit 36°F.	The difference in the lower limit on the first day weather window is not quantifiable. The lower value allowed by Annex 16 could result in test being conducted under conditions leading to large values of atmospheric absorption. This in turn would require larger corrections when adjusting the as measured data to reference day values.
2. A36.1(d)(3). . . . minimum distance of 370 ft at approach measuring point (1.0 NM from threshold).	Chap. 2, Para 2.3.1(c). Approach measurement point 394 ft vertically below the 3° descent path at position 1.08 NM from threshold.	The approach path measurement location difference appears in several parts of the standards and will be discussed with the Appendix C test condition differences.

ICAO ANNEX 16, CHAPTER 2/FAR 36 (IN EFFECT ON JANUARY 1, 1977), STAGE 2 DIFFERENCES RELATED TO NOTICE NO. 80-7 (Cont'd)

FAR 36, Stage 2	ICAO Annex 16, Chapter 2	Estimated Impact of Differences
FAR 36, Appendix A	*Appendix 1, Annex 16*	
3. A36.2(d)(6). The amplitude resolution of the analyzer must be at least 0.25 dB.	3.4.6.The amplitude resolution of the analyzer shall be 0.5 dB or less.	The analyzer amplitude resolution requirements in FAR 36 inherently leads to greater measurement accuracy. The resulting noise level differences cannot be quantified; however, the analyzer specifications could result in less precision than would be expected with the FAR 36 specifications.
4. A36.2(d)(8). The dynamic range of the analyzer must be at least 55 dB.	3.4.8. The dynamic range of the analyzer shall be at least 45 dB.	The analyzer dynamic range requirements in FAR 36 should lead to the acquisition of more noise data and hence to greater measurement accuracy. Again the resulting noise level differences cannot be quantified; however, the Annex 16 analyzer specifications could result in loss of data and in less precision than would be expected with the FAR 36 specifications.
5. A36.3(b)(3). . . . atmospheric environmental data, measured at hourly intervals or less during test.	5.2.3. . . . atmospheric environmental data measured immediately before, after, or during each test	The advantage of frequent atmospheric measurements depends on the length of the test period and the variability of the atmosphere. Again noise level differences cannot be quantified.
6. A36.3(d)(2)(a). . . . data corrected to approach aircraft height of 370 feet . . . (see A36.1(d)(3) above.	5.4.2.1(b). . . . data corrected to approach height of 394 ft.	As with No. 2, this reference to approach conditions will be addressed below.
FAR 36, Appendix B	*Appendix 1, Annex 16*	
7. B36.5. Duration correction: If PNLT(k) at the 10 dB down points is 90 PNdB or less, the value of d may be taken as the time interval between the initial and the final times for which PNLT(k) equals 90 PNdB.	4.5.1.3. If PNLTM is less than 90 TPNdB, the duration correction shall be taken as equal to 0.	In this case, the Annex 16 correction was better than the FAR 36 correction. Actually neither was appropriate but in some cases the original B36.5 procedure, which was subsequently amended, erroneously resulted in negative corrections as large as 13 EPNdB. This amendment (Amendment 36–5) became effective on September 20, 1976; hence, some prior certification could include the improper correction.

ICAO ANNEX 16, CHAPTER 2/FAR 36 (IN EFFECT ON JANUARY 1, 1977), STAGE 2 DIFFERENCES RELATED TO NOTICE NO. 80-7 (Cont'd)

FAR 36, Stage 2	ICAO Annex 16, Chapter 2	Estimated Impact of Differences
FAR 36, Appendix C	*Chapter 2, Annex 16*	
8. C36.3(a). Takeoff point 3.5 nautical miles from start of takeoff roll.	2.3.1(b). Takeoff point 6500 m (3.51 NM) difference of 60.8 ft).	The small difference in takeoff measurement point location would result in less than 0.1 dB difference in measured takeoff noise levels.
9. C36.3(b). Approach point 1 nautical mile from threshold.	2.3.1(c). Approach 2000 m (1.08 NM) from threshold (486 ft difference in displacement; 394–369 = 25 ft height).	The difference in approach measurement point location would result in Annex 16 measured noise levels approximately 0.3 to 0.4 dB lower than those measured in a FAR 36 certification.
10. C36.3(c). Sideline point 0.25 nautical miles from runway centerline except for more than three *turbojet* engines, this distance must be 0.35 nautical miles.	2.3.1(a). Lateral point 650 m (.351 NM) from runway centerline (Difference 6 ft for 4 engine aircraft and 613.7 ft for 2 and 3 engine aircraft; i.e., 2132.7 vs. 1519.0 ft).	The difference in sideline measurement point locations for two and three engine aircraft would result in Annex 16 measured noise levels approximately 1.5 to 2.5 EPNdB lower than those measured in a FAR 36 certification. For the four engine aircraft the measured noise levels would be the same under the two procedures.
11. C36.5(b). Tradeoff. Sum of exceedances not greater than 3 EPNdB and no exceedance greater than 2 EPNdB.	2.5.1. Sum of exceedances not greater than 4 EPNdB and no exceedance greater than 3 EPNdB.	The difference in tradeoffs would probably be noted at the takeoff or approach measurement points since Stage 2/Chapter 2 sideline values have generally been low enough to provide the trading margin. Under the tradeoff provisions an increase of as much as 1 dB would be acceptable at one of these two points under an Annex 16 certification.
12. C36.7(b). Takeoff power or thrust must be used to the point at which altitude at least 1000 ft above runway reached except for airplanes with more than three turbojet engines this altitude must not be less than 700 ft.	2.6.1.1. Takeoff thrust shall be used to a point at which height is at least 210 m (700 ft) above runway.	The difference resulting from the lower Annex 16 cutback altitude, (700 ft), for 2 and 3 engine aircraft is particularly difficult to quantify since the best cutback altitude is usually identified as the result of an optimization process. Actually for 2 engine aircraft the optimum cutback altitude is probably above the 1000 ft FAR 36 requirement, hence there should not be an impact on two engine aircraft noise certification levels. For 3 engine aircraft the lower allowed cutback

ICAO ANNEX 16, CHAPTER 2/FAR 36 (IN EFFECT ON JANUARY 1, 1977), STAGE 2 DIFFERENCES RELATED TO NOTICE NO. 80-7 (Cont'd)

FAR 36, Stage 2	ICAO Annex 16, Chapter 2	Estimated Impact of Differences
FAR 36, Appendix C	*Chapter 2, Annex 16*	
		altitude probably provides time for a noise reduction due to reduced thrust for the Annex 16 certification test which would not be allowed under a FAR 36 test. The magnitude of the reduction for three engine aircraft is aircraft specific, (i.e., powered by high or low bypass engine, small narrowbody or large wide body, etc.), and could be approximately a 3 to 4 EPNdB lowering of certificated takeoff noise levels.
13. C36.7(c) . . . the power may not be reduced below that which will provide level flight with one engine inoperative or that which will maintain a climb gradient of at least 4 percent, whichever is greater.	2.6.1.1 . . . . the thrust thereafter, (i.e., after cutback), shall not be reduced below that thrust which will maintain a climb gradient of at least 4 percent.	The requirement specifying the thrust level after power cutback has possibly the largest impact in terms of differences in Annex 16, Chapter 2, and FAR 36, Stage 2 certification noise levels. The differences are noted in allowable maximum takeoff weight as well as in noise level and apply only for two and three engine aircraft. Noise level differences have been identified for aircraft with takeoff gross weight over 75,000 pounds ranging from 0.6 to 6.0 EPNdB. The two engine aircraft reported, specifically, the B-737-200, all DC-9s, BAC 1-11-500s, and the A-300 B1/B2 would have respectively, 4.5, 4.9, 5.5, and 2.5 EPNdB lower certificated noise levels if measured by Annex 16 instead of FAR 36 procedures. The three engine aircraft reported, namely, the B-727-200 and the DC-10s would have, respectively, 0.9 and 1.0 EPNdB lower noise levels. In terms of impact on maximum allowable operational takeoff weight, the B-737, DC-9, and BAC 1-11 aircraft could operate at approximately 35,000 pounds greater weight under Annex 16, Chapter 2 than under FAR 36, Stage 2. Consequently, the A-300, B-727, and DC-10 could realize weight increases of 45,000, 10,000, and 33,000 pounds if certificated under Annex 16 rather than FAR 36.

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In summary, the FAA concludes that these differences are collectively significant, particularly for two-engine aircraft which are eligible for exemption under § 91.307. The practical, immediate effect of the application of Part 36 noise requirements to those airplanes is, thus, greatly minimized. While the FAA intends to accept certain demonstrations of compliance under portions of ICAO, Annex 16, it is not adopting a less stringent standard for some foreign operators that might require, to avoid undue discrimination, the adoption of that same less stringent standard for all operators engaged in foreign air commerce in the United States. To do so would impinge upon the additional beneficial effects already achieved under Stage 2 noise levels of Part 36. It could also put in an unreasonable position those aircraft operators (especially U.S. domestic operators) who have already ordered or placed into service Part 36 equipment or replacement aircraft or who have placed operating limits on the certificates of their airplanes to meet the current Subpart E requirements. It could also contravene the nondiscriminatory requirement of § 302 of the ASNA Act.

The nondiscriminatory posture is not affected by a distinction between airplanes engaged in domestic air commerce and those in foreign commerce. That distinction was an essential element of the original 1976 rule. Accepting certain noise levels under ICAO Annex 16 that are shown to be the equivalent of those achieved under Part 36 removes the legal impediment to demonstrating and accepting noise levels that are equivalent. However, the noise levels must, in all cases, be shown under conditions fully consistent with the certification basis of the airplane as determined by the certificating authority. In other respects, the determination of equivalency is based solely on whether compliance with the requirements of Part 36 have been shown or would have been shown had compliance with the provisions of Part 36 been the objective.

An indiscriminate approval of Annex 16 as equivalent to Part 36 would result in noisier aircraft being introduced into this nation's airports. Such approval might also result in the application of less acoustical technology to existing airplanes than is already planned. Because of the logarithmic nature of sound pressure levels and their perceived effects on humans, much of the expected benefit of the compliance program would be lost forever to this Nation's citizens. As a result, such a decision could be expected to encourage the proliferation of local airport actions designed to counter the increasing noise impact. The FAA does not believe that this scenario would be beneficial to the orderly development of either air commerce or international comity.

The noise requirements proposed and those adopted apply the same noise standard to all operators of affected aircraft operated in foreign air commerce in the United States regardless of whether the operator is U.S. or foreign, and regardless of the State of manufacture and registry of the airplane. The FAA has carefully considered whether the same rule can properly apply across the board and concluded, for the reasons presented in the notice and this preamble, that the difference in treatment already built into the rule, together with those being adopted by this amendment, adequately and properly reflect the distinctions that can and should be made.

The FAA continues to be concerned about the artificial creation of two "complying" fleets. In fact, however, for most of those American-manufactured aircraft operated by foreign operators for which retrofit or reengining hardware has been developed and certificated, the modified airplanes meet Part 36 requirements. Information currently available to the FAA appears to indicate that only a very limited number of airplane models affected by the rule cannot meet the Stage 2 noise level requirements under Part 36 but can meet the requirements of ICAO Annex 16, Chapter 2, by using available technology. Under the rule, both foreign and domestic operators of these aircraft will have the same equipment and applied acoustical technologies. However, under the suggestions offered by commenters, if some Annex 16 airplanes were permitted to be flown under the rule and those airplanes are not shown to meet Part 36, they still could not be transferred to operations in domestic U.S. service after 1985. That would impose a needless burden on both U.S. operators and the FAA to segregate the two complying fleets.

This issue has several other facets. For one, British Aerospace reports that it has expended considerable funds in developing hushkits for its two-engine, BAC 1-11 series aircraft. Because of its research and development program, it has developed a hushkit available to retrofit existing BAC 1-11 aircraft, which is incorporated in all current production models. That kit, according to the commenter:

> "Represents the best standard of silencing which can be built into this aircraft, and enables all varieties of BAC 1-11 to meet the standards of Annex 16. However, the later and more developed series of 1-11's, while being able to comply with Annex 16 by means of this hushkit cannot comply with the standards of Part 36, by a small margin. Several of these aircraft are operated by airlines into the United States of America, and would be affected by these proposed regulations. As the hushkit which is available represents the highest standard of silencing technology applicable to this aircraft type, we consider it is economically unreasonable and not in the public interest that these aircraft should be prohibited from continuing to conduct operations into the States."

Similar views were fully addressed in the 1976 preamble adopting the original rule and, thus, are not repeated here. However, FAR Part 11 exemption process provides an adequate administrative mechanism to grant relief from strict compliance in particular cases when found to be in the public interest and consistent with the provisions of the ASNA Act. While no predetermination can be made or should be inferred for any specific aircraft, operator, or situation, the FAA is mindful of the purposes and limitations under Part 11 as a mechanism providing the needed flexibility under the rules. We also note that the two-engine BAC 1-11 airplanes would be able to operate in the U.S. until January 1, 1985, or January 1, 1988, under the service to small communities exemption provisions of the rule for all two-engine airplanes.

Final Compliance Dates

Fifteen comments were received on the proposed January 1, 1985, compliance date for aircraft operated in foreign air commerce. Most of these comments were discussed previously under the discussion on applicability of the rules. However, the British Government pointed out that they have adopted a January 1, 1986, limit on the operation of aircraft not complying with Annex 16 on their aircraft register. They pointed out that the effect of the proposed regulations would be to prohibit the use of the affected UK-registered aircraft in the United States during the last year of their permitted use in Great Britain. The commenter does not suggest that a large number of aircraft would be involved, but that the effect of such a prohibition could be serious for a number of their operators, particularly second-line operators and cargo operators, for whom no satisfactory, complying aircraft is available to replace aircraft on long range, "thin" routes, or on route developments which could not support larger aircraft.

While the FAA recognizes the cited needs that may arise in individual cases, the ASNA Act does not provide that discretion for not applying the 1985 date, except with regard to the two exemptions contained in the ASNA Act and the traditional Part 11 exemptions.

Phased Compliance

Several comments were received on the FAA's proposal not to prescribe for aircraft operated in foreign air commerce the same schedule for phased compliance imposed on U.S. registered airplanes. One commenter (the Town-Village Aircraft Safety and Noise Abatement Committee of the Town of Hempstead, New York) suggested that it would be very desirable to have an interim deadline in the rule so that the carriers affected would have to begin movement toward compliance before 1985 in enough time to ensure that the 1985 deadline will be met by all carriers affected. Other commenters welcomed the fact that no structured phased compliance schedule was proposed.

The imposition of phased compliance schedules would provide no meaningful relief. Nearly all foreign carriers serving the United States already own and operate some complying airplanes, and operate some airplanes entirely outside of the United States.

Enforcement of any phased compliance rule would of necessity involve complex reporting and bookkeeping requirements to verify operation of specific airplanes in the United States and percentages of total operations by those airplanes. Experience with the domestic, phased-compliance rule has shown such enforcement to be time-consuming and laborious for both operators and government. While the domestic compliance plan requirements are an important complement of that rule, its successes are achieved in large part because all the aircraft are on the U.S. registry, are flown at least in part in the United States, and direct communications with the operator is possible. Such is not the case with foreign operators serving the United States with varied equipment and sometimes on an infrequent basis. Further, as a practical matter, complying airplanes serving the United States will necessarily be phased-in in order to meet final compliance dates. The rate of that compliance is less important to require by rule than is assuring there is a mechanism for monitoring the progress towards that compliance. That mechanism already exists for foreign operators. There is no indication that the rate of phased compliance would be greater were it prescribed in the rules.

Replacement Airplanes

Several commenters expressed their concern with the lack of replacement airplanes for those four-engine aircraft currently in their passenger or aircargo fleets. One commenter (Zantop International Airlines) suggested that procedures be established which will preserve the integrity of the current U.S. Civil Reserve Air Fleet, pending the availability of replacement of all-cargo aircraft. There is no substantial evidence of either a lack of complying passenger or all-cargo aircraft available on the free market, or a shortage of such aircraft that will develop between now and 1985. There is also no requirement that four-engine aircraft be replaced only by another four-engine aircraft. Therefore, there is no compelling reason to create a different set of regulations for the replacement of cargo aircraft from those covering replacement of passenger-carrying aircraft. However, the FAA will continue to monitor those situations carefully and will consider, if necessary, appropriate relief under § 611 of the Act and the ASNA Act.

Service to Small Communities Exemption

Fourteen comments were received on this feature of the proposal. Thirteen of those approved of the proposed exemption but expressed concern that the language in the notice did not correctly reflect the intent of the ASNA Act. Specifically, commenters questioned proposed § 91.307 because it appeared to create an element of administrative discretion in the granting of the service to small communities exemptions. They expressed the view that § 304 of the ASNA Act was clear and unambiguous and did not provide for such discretion. The only discretion authorized by § 304 is that limited authority to provide relief from the December 1, 1979, eligibility date for the 100-seat configuration standard in order to avoid unreasonable hardship or advantage for a carrier's ability to utilize the small community exemption provision.

The FAA agrees that § 304 of the ASNA Act does not confer discretion in granting service to small communities exemptions covering eligible aircraft under terms of the ASNA Act. Section 91.307 does not attempt to impose such a limitation but uses the statutory language to distinguish that special exemption from other exemptions issued under the Federal Aviation Act.

The FAA observes that in raising these objections to proposed § 91.307, the commenters did not contend that Congress enacted the exemption in § 304 for purposes other than maintaining small community service. As a practical matter, small community service in fact will be a primary result of the exemption. It is nevertheless apparent that Congress chose to avoid making definitive judgments or providing criteria as to what constitutes "small community service." The term is not defined in the ASNA Act or its legislative history. Persons familiar with airline operations know that such an attempt would either be futile or destroy the basic objective of § 304. Many airline and air cargo systems are fully integrated. Aircraft routing patterns simply do not permit assignments of particular aircraft to discrete missions such as "small community service."

In general, the FAA agrees with the views of those commenters who indicated the title "Small Community Service Exemption" does not legally impose any requirement of small community service as a condition for granting the exemption. The substance of the statutory and regulatory provisions (and the discussion in this preamble) were designed to promote that service to small communities.

Proposed § 91.307(a) says (in part), "the Administrator issues an exemption from the noise level requirements under this subpart to permit operation to provide services to small communities in the United States." The FAA did not propose and does not intend, to require operation to small communities either as a prior condition for the approval of the exemption or as a condition for continued operation under those exemptions. Nevertheless, to avoid future confusion on that point, § 91.307(a) has been edited to clarify that result.

There was one dissenter to providing the exemption prescribed by the ASNA Act for two-engine airplanes. A foreign government (United Kingdom) pointed out that the notice proposes less stringent requirements for two-engined airplanes on short haul flights in the United States. Since virtually all the noncomplying turbojets operating on the longer haul routes from Europe to the U.S. are four-engined airplanes, the commenter opined that the "small communities" exemption would likely benefit only domestic U.S. operators. A domestic carrier operating the right type of airplane from a major airport to a small community could claim an exemption, whereas a foreign carrier operating the same type of airplane to the same major airport could not. Thus, the commenter felt there was an element of discrimination which is objectionable.

The FAA disagrees with that analysis. Since the exemption is available under the statute and the rule to all operators of two-engine airplanes, some of the most likely beneficiaries of the exemption are small operators engaged in air commerce including those providing air services between U.S. airports and various points in the Caribbean, Canada, and Latin America. It does not put foreign operators at a competitive disadvantage in serving the same markets. U.S. operators are no more able to use two-engine airplanes under the rule to serve U.S.-European markets than their foreign counterparts. Also, that commenter may have been influenced by the mistaken view that petitions for the exemption would be judged on the basis of the applicant actually providing service to small communities in the United States, rather than the Congressional basis for preserving aircraft capable of providing service to small communities. The statutory provision, which the Administrator must implement, limits the exemption to two-engine airplanes. The rule change cited above should allay that concern.

Many commenters stated that since the language of the ASNA Act provided for no discretion in issuing an exemption, § 91.307 should be rewritten to provide an "exception," rather than an "exemption," for two-engine airplanes. That approach to implementation was considered. However, the ASNA Act prescribes different termination dates based on prior seating capacities or future changes in ownership. Because of the administrative needs for monitoring and enforcing compliance status and plans, the FAA has determined that the small communities provision can be administered most effectively and expeditiously as an exemption. Thus, no change has been adopted as a result of that comment.

One commenter (Air Transport Association) noted that, as proposed, the two-engine airplane exemption expires on any date after January 1, 1983, upon which the exempted airplanes changes ownership (but not later than January 1985 or 1988, as appropriate for the seating configuration). That provision appears to present an unintended stumbling block in corporate mergers and acquisitions, where legal ownership may change but the use of the airplane would not change. Accordingly, the commenter suggested adding a new paragraph to § 91.307 to read—

"The exemption does not terminate when ownership changes due to acquisition or merger, and the airplane remains in substantially the same type of service for which it was used prior to the change in ownership."

After careful consideration, the FAA concludes that, with clarification, it is a reasonable, general interpretation of the provision that is in line with the perceived legislative intent. Further, it could simplify the administration of the exemption and is the type of guideline that the FAA would itself have to use in order to administer the small communities exemption. However, the FAA concludes that there are several limitations that must be imposed on that general interpretation and that the interpretation should not be incorporated into the rule itself.

The FAA has no problem with the position that under § 304 of the ASNA Act an exemption issued to an operator covering eligible, two-engine airplanes does not terminate under that Act because of a simple change in the operator's name, a traditional corporate merger of two or more corporations (such as when Southern Airways, Inc. and Ozark Air Lines, Inc., legally merged under the State and Federal law to create Republic Airlines, Inc.) or because of a traditional corporate acquisition of one company by another (such as when Pan American World Airways, Inc., legally acquired the corporate assets and liabilities of National Airlines, Inc.). In other situations, however, the sale, lease, or other disposition of an airplane covered by an exemption would, by operation of § 304, terminate that exemption at the time of delivery of that airplane to another legally recognized "person." The form and effect of a particular disposition and subsequent use of affected airplanes may need to be examined to determine whether it is covered by the termination provisions of § 304. Thus, § 91.307 is a generally applicable rule which is not susceptible to adequate or proper expansion, as suggested by the commenter, to delineate regulatorily each factor and consideration that could affect the application of the law to every case. It would be neither wise nor prudent to attempt to do so. Accordingly, the interpretation and application § 91.307 in implementing § 304 will be a matter for determination on an individual basis.

In that regard, the FAA notes that exemptions under the Federal Aviation Regulations are issued to persons to whom a regulation applies and grant particularized relief from requirements under specific circumstances. Part 91, Subpart E, prescribes rules applicable to the operators of the specific airplanes covered by this rule. Similarly, exemptions, including those issued pursuant to § 91.307, are issued to operators and cover specific activities or airplanes. Monitoring of termination dates under § 91.307 necessarily can be achieved through that procedure because an exemption is not transferable with the airplane to another person and a new operator is not authorized to operate the airplane covered by an exemption issued to a previous operator. In the cases where the "exemption" authorized by § 304 does not terminate by operation of law, an exemption to the new operator would be issued routinely to cover the airplane and its operation by that operator. The procedures of FAR Part 11 apply to the application for and issuance of an exemption to an eligible operator. However, for an original issue exemption based on seating capacity on December 1, 1979, (covering an airplane not previously covered by such an exemption), the nondiscretionary aspect of § 304 authority to grant the exemption constitutes the requisite "good cause" for waiving the full 120-day filing requirement (§ 11.25(b)). Those petitions should be made at least 30 days before the proposed effective date of the exemption. FEDERAL REGISTER publication of notice of receipt of petitions (§§ 11.27(c) and (f)) and disposition of petitions (§ 11.27(e)) will occur, however. In other respects, petitioners for service to small community exemptions must follow Part 11 procedures and present sufficient information to determine their qualification for an exemption. It must provide information covering operation of specific, eligible airplanes and the seating capacity of each affected airplane to determine maximum duration of the exemption. The exemption, when issued, will specify the expiration date of the exemption for each airplane covered by the exemption document. Modification of the exemption after issuance will permit airplanes to be added or deleted from the exemption under the rules. Thus, an operator will need and will be issued only one service to small communities exemption document but that document will cover all eligible airplanes covered by the exemption provisions.

Other Issues

No comments were received that specifically addressed either the use of "tradeoffs" in showing compliance with the provision of Subpart E or the proposal not to extend the compliance plan reporting requirements to foreign operators or to adjust the content requirements for plans. Those portions of Notice No. 80–7 are adopted as proposed.

Several foreign commenters suggested that the FAA not introduce noise certification as an operating rule for foreign operators because of the dangerous precedent this could create in respect of other airworthiness matters. One commenter in particular suggested that the proposed rule would be the equivalent of the United States failing to recognize as valid the certificates of airworthiness of foreign registered aircraft which do not comply with Part 36. Similar concerns were expressed by several commenters. Apparently, the basis for this concern was the perception of the unilateral action by the United States previously discussed and the effect that this perception could have on other aircraft certification and airworthiness agreements reached by ICAO under the Chicago Convention.

This amendment is directed at the operation of aircraft in the United States. It is not directed at airworthiness certification or authority of ICAO member States. Article 33 of the Chicago Convention requires reciprocal recognition of certificates of airworthiness by contracting States, provided that the requirements under which they are issued are equal to or more stringent than ICAO minimum standards. It was argued that, because of that requirement, the United States must accept for all operations foreign registered aircraft certificated to Annex 16 standards. What that argument fails to consider is that this amendment does not in any way affect U.S. recognition of foreign certificates of airworthiness. It is merely a restriction on operations of certain airplanes in and out of U.S. airports. Other operations of affected airplanes, such as overflights of U.S. territory, are not affected. If the United States were refusing to recognize those foreign airworthiness certificates, all operations including overflights would be prohibited. Thus, this amendment is clearly an operating rule and not an action refusing to recognize foreign certificates of airworthiness. The Chicago Convention, in Articles 11 and 12, recognizes the right of each contracting State to promulgate and enforce rules of the air, as long as they are applied to the aircraft of all contracting States without distinction as to nationality. Further, as previously discussed, Article 38 recognizes the right of any State to adopt necessary regulations that differ from those established by an international standard. This rule falls squarely within those authorities.

It is also important to note that the United States did not undertake lightly this action to promulgate an operating rule but did so only after repeated entreaties to ICAO to provide leadership in this matter and with adequate notice of U.S. needs and intentions. The subject was first brought under international discussion in an ICAO special meeting in November 1969. In November 1976, the United States announced its intention to require operators engaged in foreign commerce in the United States to comply with the operating noise limits rule by 1985. By that time more than 15 years will have elapsed since the matter was first broached in the ICAO. At this time, based on their May 1979 decision, there is no assurance that the ICAO will endorse an international standard governing operating noise levels even after the 1988 date in that decision.

One commenter expressed particular concern with the possibility that some United States airports would apply more stringent regulations of their own beyond these adopted by the FAA. That legitimate concern, however, is outside the scope of the subject and issues contained in Notice No. 80–7 which is based on Title III of the ASNA Act. It should be noted that Title I of that same Act delineates many of the actions that may be taken by airport proprietors and operators to identify and alleviate an airport community noise problem. Title I also provides for rules to govern submission of these proposed actions for FAA review on an airport-to-airport basis and charges the FAA with the responsibility to disapprove any proposed actions or combinations of actions that "create an undue burden on interstate or foreign commerce." At this time, the FAA is preparing regulatory action to implement Title I. Most, if not all, of the commenters' concerns will be addressed in that rulemaking proceeding.

Several commenters noted that the Conference Report for the ASNA Act urged the FAA to give consideration to hardship situations involving smaller carriers operating four-engine airplanes where the carrier is making a good faith compliance effort but needed technology is either delayed or unavailable and rigid adherence to compliance deadlines could work financial havoc and deprive the public of valuable airline service. Some of those commenters recommended expanding this rulemaking action to provide specific criteria for granting that relief. After careful review, the FAA finds that it cannot meaningfully improve on the admonition of the Conference Report or on the provisions of FAR §§ 11.25 and 11.27 which contain specific procedures for petitioning and for granting such petitions under the rules in the particular cases presented. Therefore, while attention is specifically directed to the guidance provided by the Congress, no regulatory expansion or amendment is needed.

Three commenters included in their submissions requests for waivers or exemptions for specific foreign scheduled air carriers. The FAA cannot consider such requests in the context of this general rulemaking proceeding, but will consider each fully documented request submitted in accordance with § 11.25 of Part 11. However, pending adoption of this amendment, those requests were premature in seeking relief from requirements not yet issued or evaluated by those commenters to determine whether or what form of relief should be sought.

VIII. SECTION-BY-SECTION ANALYSIS OF THE AMENDMENT

This action amends Subpart E of Part 91 of the Federal Aviation Regulations (14 CFR Part 91) which contains the operating noise limits and related requirements that apply to the operation of affected aircraft to or from airports in the United States. The following discussion outlines the changes to each affected provision reflecting Title III of the Aviation Safety and Noise Abatement Act of 1979.

A. Applicability to airplanes engaged in foreign air commerce.

Section 91.301(a) (1) is amended to reflect the expanded applicability to Subpart E for civil subsonic airplanes engaged in foreign air commerce in the United States, regardless of the State of registry of the airplane. The provision is restructured and a new paragraph added to provide comparable treatment for foreign registered airplanes with maximum weights of more than 75,000 pounds. The new paragraph indicates that Subpart E applies if the airplane would be required by the Federal Aviation Regulations to have a U.S. standard airworthiness certificate in order to conduct the operations intended for that airplane were it registered in the United States. It also clarifies that the rule applies to operations to or from U.S. airports, not to overflights of the United States. A new paragraph (a) (2) is added to indicate that there is no substantial need, and, thus, no requirement at this time for foreign operators to submit compliance plans and status reports. Compliance status of airplanes operated in the United States by foreign operators can be adequately monitored through the existing mechanisms covering those operations and airplanes. Accordingly, this amendment does not change § 91.308 to expand its application to foreign operators. Current paragraph (a) (2), concerning civil supersonic airplanes not affected by the proposals, is redesignated as paragraph (a) (3).

B. Relationship to Part 36.

Paragraph 91.301(b) is revised to expressly incorporate the Part 36 definitions of "Stage 2" and "Stage 3" noise levels and of airplanes described in terms of those noise levels ("Stage 2 airplanes" and "Stage 3 airplanes"). Those terms are used whenever appropriate to identify more specifically the applicable Part 36 noise levels under Part 91, Subpart E. The paragraph is also expanded to provide the regulatory basis for the Administrator to determine that, solely for purposes of Subpart E, noise certifications under certain portions of ICAO Annex 16 are substantially compatible with, and achieve results equivalent to those achievable under, Part 36. Those determinations apply only to subsonic airplanes engaged in foreign air commerce.

C. Tradeoff provisions.

Paragraph 91.301(c), governing the limited applicability of the tradeoff provisions of § C36.5(b) in showing compliance with Subpart E, is deleted. That change implements the legislative authorization to use "tradeoffs" in showing compliance with the provision of Subpart E (§ 305 of the ASNA Act).

D. Final compliance dates.

Section 91.303 is amended to reflect the legislative authorization (§§ 303(b) and 304, ASNA Act) for extending the final compliance dates beyond January 1, 1985, (For some airplanes, full compliance is required before January 1, 1983, under § 91.305(b) (2) (ii).) The affected provisions govern two-engine or three-engine airplanes under FAA approved replacement plans (§ 91.305(d) (1)) or under the small communities exemption provisions for two-engine airplanes (§ 91.306). In other respects, the Stage 2 or Stage 3 noise levels still must be achieved according to the phased compliance schedule and by all affected subsonic airplanes by January 1, 1985, in order to operate in the United States.

E. Phased compliance.

Section 91.305 prescribes the phased compliance schedule for U.S. registered airplanes operated under Parts 121 or 135, including provisions for extending those dates up to January 1, 1985, under an FAA approved plan for "replacement airplanes" that have been shown to comply with specified Part 36 noise levels. This amendment expands the general applicability of that section to include all affected airplanes operated in domestic U.S. air commerce, regardless of their State of registry. (That change is necessary to ensure that the noise abatement objectives of the rule are not inadvertently subverted in those cases where U.S. operators operate foreign registered airplanes in the United States under the recently adopted provisions of the International Air Transportation Competition Act of 1979.) For purposes of phased compliance, the rule distinguishes between airplanes operated in domestic U.S. air commerce, and those operated in foreign air commerce in the United States. The proposed amendment has been rewritten to clarify the applicability of each provision, including the continued applicability of phased compliance to U.S. operators of airplanes engaged in domestic and foreign air commerce in the United States. The notable exceptions are those airplanes covered by approved apportionment plans to engage in foreign air commerce and the airplanes operated under service to small communities exemptions (§ 91.307(a)). The exception provision of § 91.305(b) has been clarified to indicate that for purposes of phased compliance airplanes covered by one or the other of the exceptions are not counted among the number of airplanes for which noise level compliance must be shown or which may not be operated in the United States. Accordingly, the proportional, phased compliance must be achieved by the remaining, unexcepted airplanes.

For all airplanes engaged in foreign air commerce in the United States, regardless of the State of registry, compliance is required as follows:

(1) By January 1, 1985, for all affected airplanes (except those identified in paragraphs (2) and (3) below), including those previously operated under—

(a) An approved method of appointment (§ 91.305(c));

(b) An approved replacement plan (§ 91.306(b) and (c); and

(c) A service to small communities exemption (§ 91.307(a) (3)).

(2) By January 1, 1986, for two-engine airplanes scheduled to be replaced under an approved plan (§ 91.306(a)); and

(3) By January 1, 1988, for two-engine airplanes having 100 passenger seats or less and previously operated under a service to small communities exemption (§ 91.307(a) (2)).

The provision for apportionment of airplanes engaged in foreign air commerce by U.S. operators under § 91.307 is redesignated under § 91.305(c). That provision is rewritten but continues to permit persons operating airplanes in both domestic and foreign air commerce in the United States to apportion those airplanes between the two kinds of operations. That is accomplished by electing to comply with the requirements for airplanes operated in foreign air commerce with respect to that portion of the airplanes operated by that person shown, under an FAA approved method of apportionment, to be engaged in foreign air commerce in the United States.

F. Replacement airplanes.

Under this amendment, § 91.305(c), governing replacement airplanes, is redesignated and revised under new § 91.306. Specific, additional statutory requirements are implemented for replacement of two-engine and three-engine airplanes in accordance with the ASNA Act. The contract must be executed before January 1, 1983, and specify delivery of a Stage 3 airplane before January 1, 1985, for replacing three-engine airplanes and before January 1, 1986 for replacing two-engine airplanes. This amendment incorporates those requirements and dates while preserving the existing rule for other airplanes covered by Subpart E.

Under the existing rule, the effect of which is unchanged for other than certain two-engine and three-engine airplanes, § 91.305(c) permits continued operation of a noncomplying ("Stage 1") airplane after the applicable phased compliance date, if it will be replaced before the final compliance date. To continue to be operated, the airplane must be covered by an FAA approved replacement plan (before the phased compliance date) with a scheduled delivery (before January 1, 1985) of an eligible replacement airplane. To be eligible, that airplane must have been shown to comply either (1) with Stage 2 or Stage 3 noise levels before issuance of an original standard airworthiness certificate or (2) with Stage 3 noise levels before issuance of a standard airworthiness certificate other than original issue (for airplanes that have been reengined or otherwise modified). The existing provisions are rewritten to apply only to airplanes not covered by the ASNA Act "new technology aircraft incentive" (§ 303) and to clarify that the replacement airplane "ordered and . . . scheduled for delivery" must be under a "binding contract," not merely an option to buy, as discussed below. In all cases, operation of the airplane to be replaced may continue until the dates specified in the rule but, as prescribed in the rule, not beyond the date specified in the approved plan. Accordingly, the ASNA Act does not address any replacement of airplanes subject to the existing January 1, 1981, compliance date. To operate those airplanes to be replaced after that date still requires FAA approved replacement plans and binding contracts for replace- ment airplanes *before* the applicable 1981 phased compliance dates.

In order to determine whether acceptable contractual obligations supporting a replacement plan have been executed by the operator of the Stage 1 airplanes, the amendment provides for the submission of a certified application for approval of the replacement plan. Paragraph 91.306(d) applies to each replacement plan, including any revised plan, submitted for approval to the FAA. It requires operators of the airplanes to be replaced to submit to the FAA, Director of the Office of Environment and Energy, an application containing specified information constituting the plan, and certified as true and correct (under penalty of 18 U.S.C. 1001), upon which the FAA may rely in considering whether to approve the replacement plan. More than one airplane may be the subject of a single replacement plan. On the basis of the application and replacement plan, the FAA should be able to determine whether a mutually binding contract between the operator and an aircraft manufacturer, or other source, for actual and timely delivery of an eligible replacement airplane has been entered into as contemplated under § 303 of the ASNA Act and new FAR § 91.306.

The information required to be included in the application should simplify the process of applying for and considering approvals. It should avoid, in most cases, the need for submitting the actual contracts and complex financing documents for review before a replacement plan can be approved. It should provide the requisite assurances that replacement of the airplanes covered will in fact occur and an eligible replacement airplane will be put into service as contemplated. In that regard, an approved replacement plan will permit the continued operation of the Stage 1 airplane only until the date specified in the plan or its expiration under the rule and only so long as the material facts and representations made by the operator and relied upon in giving an approval continue to apply. The FAA contemplates that commercially sound transactions must be presented in order to obtain approval of each replacement plan. To ensure that the FAA has adequate information to make that determination, the amendment includes authority to request from the applicant any additional information or documentation when needed.

G. Service to small communities exemption.

The statute provides for issuance of limited exemptions to permit Stage 1 airplanes powered by two engines to be operated after otherwise applicable interim and final compliance dates (§ 304 of the ASNA Act). That provision is implemented under a new § 91.307. Under that section, the Administrator issues to operators exemptions covering specific two-engine airplanes operating in air commerce in the United States. Paragraph (a) of the new section provides the statutory dates for termination of the exemption; that is, January 1, 1985, for airplanes with more than 100 passenger seats and January 1, 1988, for airplanes with 100 passenger seats or less. Also, as specified in the ASNA Act, if an airplane covered by an exemption is sold, or otherwise disposed of, to another person on or after January 1, 1983, the exemption terminates on the date of delivery to that person. Because exemptions are issued to operators, are nontransferable, and cover specified airplanes, operation of an exempted airplane by another person will require the new operator to show any required compliance, or, if eligible, obtain an exemption covering its operation of that airplane, before operating it. Paragraph (b) contains the statutory provision indicating that the airplane's seating capacity, which dictates the maximum duration of the exemption, is governed by that shown to exist on December 1, 1979, or an earlier date established for that airplane by the Administrator.

H. Compliance plans and status.

Amendments to § 91.308 do not include any extension of the requirements for submitting compliance plans and status reports to foreign operators. However, several changes in the rule, primarily affecting U.S. operators engaged in both domestic and foreign air commerce, are adopted to reflect more clearly the changes in the operating noise limit requirements. Paragraph (a) is amended to cover airplanes under foreign registry that are operated by U.S. operators in the United States. Editorial changes are made in paragraphs (b) (2) and (3) to reflect the amendments to other sections. Paragraph (c) (3) is amended so affected U.S. operators can break down the total number of airplanes engaged in domestic U.S. air commerce and in foreign air commerce in the United States, as well as the total number of airplanes in each of those classes that are powered by— (1) four turbojet engines with no bypass ratio or with a bypass ratio less than two; and (2) any other bypass ratio engines or number of engines. U.S. operators can also report the number of two-engine airplanes in each class operated under a service to small communities exemption. Under this amendment, current paragraph (c) (4) (x) is amended to govern only retirements of DC-8 and B-707 airplanes operated in domestic U.S. air commerce and a new paragraph (c) (4) (xi) covers those airplanes operated in foreign air commerce in the United States. Several paragraphs are redesignated and a new paragraph (c) (4) (xiv) is added to cover each airplane operated under an exemption issued to the operator, including those operated under a service to small communities exemption. Corresponding reporting codes are amended or added to paragraph (c) (5) to reflect those amendments to the compliance plan and status reporting requirements affected by the ASNA Act. Compliance plans and status reports providing the information in the changed rule will not be required until the operator submits a new or revised plan and report after the effective date of this amendment.

EFFECTIVE AND COMPLIANCE DATES

In light of the objectives and effects of this amendment, it is being made effective upon publication in the FEDERAL REGISTER (45 FR 79302, 11/28/80). The amendments of §§ 91.303–91.308 include specific relief from the current requirements of Subpart E for domestic operations. Since some of those operators must meet the first phased compliance on January 1, 1981, those amendments should become effective as soon as possible to provide the relief contemplated under the ASNA Act. For foreign operators brought under Part 91 Subpart E by this action, the amendment requires compliance by January 1, 1985, 1986, or 1988 (depending on the airplane affected), regardless of when the amendment becomes effective. Thus, it provides compliance dates that exceed the required 30-day prior notice of regulatory requirements. Accordingly, I find that good cause exists for making this amendment to Subpart E of Part 91 effective upon its publication in the FEDERAL REGISTER.

ADOPTION OF THE AMENDMENT

Accordingly, Subpart E of Part 91 of the Federal Aviation Regulations (14 FR Part 91) is amended, effective November 28, 1980.

(Sections 307, 313(a), 601(a), 603, and 611(b), Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a), 1421(a), 1423, and 1431(b)); Section 6(c), Department of Transportation Act (49 U.S.C. 1655(c)); Title III, Aviation Safety and Noise Abatement Act of 1979 (Pub. 96-193; 94 Stat. 50); 49 CFR 1.47(m); Title I, National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.); Executive Order 11514, March 5, 1970).

Note. The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044 as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the regulatory evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified above under the caption "FOR FURTHER INFORMATION CONTACT".

Amendment 91-172

Transport Category Airplanes—Pitot Heat Indication Systems

Adopted: December 22, 1980 Effective: January 2, 1981

(Published in 46 FR 19, January 2, 1981)

SUMMARY: This amendment suspends the April 12, 1981, compliance date specified in § 91.50(a) of the Federal Aviation Regulations for operation of transport category airplanes when they are used in general aviation operations and not operations conducted under Part 121, 123, 125, or 135 of the Federal Aviation Regulations. Section 91.50 provides that after April 12, 1981, with certain exceptions, no person may operate a transport category airplane equipped with a flight instrument pitot heating system unless the airplane is also equipped with an operable pitot head indication system. The FAA is issuing a notice of proposed rule making which proposes to exclude general aviation operators from these requirements. Suspension of the April 12, 1981, compliance date enables the FAA to re-examine the regulation as it applies to these operators before imposition of the requirement.

FOR FURTHER INFORMATIONS CONTACT: Eli S. Newberger, Regulatory Projects Branch, AVS-24, Safety Regulations Staff, Associate Administrator for Aviation Standards, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, Telephone (202) 755-8716.

DISCUSSION

The FAA issued Amendment No. 91-148 on March 6, 1978, (43 FR 10339; March 13, 1978, Docket No. 15594) providing that after April 12, 1981, with certain exceptions, no person may operate a transport category airplane equipped with a flight instrument pitot heating system unless the airplane is also equipped with an operable pitot heat indication system that complies with § 25.1326. This rule applies to all transport category airplanes regardless of the type of operation being conducted.

On January 26, 1979, the National Business Aircraft Association, Inc. (NBAA), submitted a petition requesting that the April 12, 1981, compliance date be held in abeyance and also petitioned to amend the regulations to require that only transport category airplanes operated under Part 121, 123, 125, or 135 meet the requirement to have an operable pitot heat indication system. A summary of the NBAA's petition was published in the *Federal Register* on October 18, 1979 (44 FR 60107), and there were no comments. As the result of this petition, the FAA is issuing a notice of proposed rule making which proposes to exclude general aviation operators from these requirements. This will allow the FAA to re-examine the regulations as they apply to these operators before imposition of the requirement.

Accordingly, the FAA has determined that the public interest justifies a suspension of the compliance date of § 91.50, as it applies to operators of transport category airplanes used in general aviation operations and not in operations conducted under Part 121, 123, 125, or 135. Since this action is taken to avoid imposing an unnecessary burden on the public, I find that notice and public procedure are impracticable and that good cause exists for making this amendment effective in less than 30 days.

THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended effective January 2, 1981.

(Secs. 303(d), 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), and 1423); sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).

Note—The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979) and the expected impact of this amendment is so minimal that it does not warrant a regulatory evaluation. Additionally, this rule is a final order of the Administrator as defined by Section 1005 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1485). As such, it is subject to review only by the courts of appeals of the United States or the United States Court of Appeals for the District of Columbia.

Amendment 91-173

Takeoff and Landing Minimums

Adopted: December 30, 1980 **Effective: May 8, 1981**

(Published in 46 FR 2280, January 8, 1981)

SUMMARY: These amendments clarify the conditions under which a pilot may approach and land at an airport when the weather conditions do not allow the pilot to see the runway until shortly before landing. They also add certain requirements that must be met before a pilot may take off an air carrier aircraft in weather conditions that limit the pilot's visibility. These amendments are necessary to clarify the regulations and to provide the additional requirements needed for operating an aircraft safely under these weather conditions.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

NOTICE OF PROPOSED RULE MAKING

These amendments are based on Notice of Proposed Rule Making (NPRM), Notice No. 80-4, published in the *Federal Register* on March 6, 1980 (45 FR 14802.) All interested persons have been given an opportunity to participate in the making of this rule and due consideration has been given to all information submitted. Except for the changes discussed below these amemdments and the reasons for their adoption are the same as those stated in Notice 80-4.

EFFECTIVE DATE OF AMENDED RULE

This rule is effective May 8, 1981, to provide for public dissemination of its provisions and to conduct the necessary pilot education regarding compliance.

BACKGROUND

Part 97 of the Federal Aviation Regulations prescribes standard instrument approach procedures for instrument letdown to many airports in the United States and prescribes the weather minimums applicable to takeoffs and landings under instrument flight rules (IFR) at those airports for which procedures are prescribed. Rules applicable to the use of these instrument approach procedures previously were set out in §§ 91.6, 91.116, and 91.117 and for air carriers in §§ 121.651, 121.653, and 135.225. A recent addition of a new Part 125 of the Federal Aviation Regulations adds a § 125.381 for operation of certain large airplanes other than under Parts 121 or 135. Section 91.116(b) prohibited a person from landing an aircraft using a Part 97 instrument approach procedure unless the visibility is at or above the landing minimum prescribed for the particular procedure. Section 91.117(b) prohibited a person from operating an aircraft below the prescribed minimum descent altitude (MDA) or from continuing an approach below the decision height (DH) unless certain conditions are met. The conditions specified that to continue descent the aircraft must be in position from which a normal approach to the runway of intended landing can be made, and the approach threshold of that runway, or approach lights or other markings identifiable with the approach end of that runway, must be clearly visible to the pilot. It also required that the pilot execute the appropriate missed approach procedure if the requirements of that paragraph were not met when the pilot reached the missed approach point or DH or at any time after that. Sections 121.651 and 121.653 formerly specified, and § 135.225 currently specifies, the conditions in which air carrier and commercial operator aircraft may initiate an approach if weather conditions are above published minimums, and they provide exceptions when weather conditions deteriorate below minimums while an approach is in progress.

A regulatory project was initiated in 1968 to clarify certain requirements applicable to instrument approach procedures and some of the landing rules discussed above. Notice 72-17 was issued on July 12, 1972, and a withdrawal notice was issued on December 7, 1975, due to adverse comments regarding the proposed elimination of the "look-see" privileges for Part 91 operators. An effort was initiated to resolve other changes needed to update the rules to be consistent with present standards. Comments received on Notice 72-17 were considered and changes made where appropriate for those sections of the rule being revised. Notice 80-4 was issued on March 6, 1980. Comments were received, reviewed, and necessary changes were made in the preparation of this final rule.

NEED FOR AMENDMENTS

The revised rules, including §§ 1.1, 91.6, 91.116, and 121.651, are necessary based on operating experience to ensure an appropriate level of safety in instrument approaches and landings, and are necessary to clarify certain rules which, in some cases, have been misinterpreted. Other changes are necessary to make administrative corrections to the rules, to update them, or to make them consistent with current FAA and aviation system policies and practices. Any additional changes that may be needed to update § 135.225 or the recently issued § 125.381 to be consistent with the revised §§ 91.116 and 121.651 may be taken in a subsequent rulemaking proceeding.

Approach and landing accidents are the largest single cause of air carrier passenger fatalities and also represent a significant percentage of general aviation fatalities. Between 1964 and 1975, the National Transportation Safety Board recorded 259 air carrier approach and landing accidents which constituted 41% of the total number of air carrier accidents and 46% of the fatalities. Excluding the area of very low visibility approaches conducted under Category II and III where special equipment, training, and approval procedures are used resulting in a good safety record, 62 of these accidents occurred when the reported weather conditions were less than a ceiling of 1,200 feet and 3 miles visibility. Forty-six of these involved ceilings of less than 600 feet and visibility of less than 1½ miles. The following factors were cited as causing, or possible factors contributing to, the 62 accidents: continuation of the descent below the MDA or the DH with inadequate visual cues; unrecognized altitude loss or descent rate; disorientation; collision with obstacles well below the normal descent path; visual illustration; failure to monitor or cross check altitude; inadvertent descent below the glide slope; loss of sight of the runway while below the MDA or the DH; failure to initiate a missed approach; and other factors related to lack of adequate visual reference. Since 1975 investigations of numerous incidents and accidents, such as the 1979 commuter air carrier accidents at Hyannis, Massachusetts and Rockland, Maine, indicate the inappropriate use of limited visual references during approach and landing. Pilot use of inappropriate visual references also occurs in general aviation operations. For example, data from the FAA's General Aviation Accident Data System for 1979 indicate that use of inadequate visual references during the landing phase may have been a contributing factor in at least 35 accidents. Accordingly, the FAA is revising, clarifying, and combining provisions regarding takeoff and landing under IFR now in § 91.116 and the limitations on the use of instrument approach procedures now in § 91.117 into a revised § 91.116 entitled "Takeoff and landing under IFR." New § 91.116 generally redesignates former paragraphs (c) through (f) as paragraphs (f) through (i) and makes necessary revisions throughout all paragraphs. Similar provisions in the former § 91.6(c) regarding Category II operations are clarified and in some cases revised to be consistent with current practice and the revised § 91.116.

Specific Changes to the Rule and Discussion of Comments

Fifty-five comments were submitted to the docket in response to Notice 80-4, representing the views of individuals, companies, associations of U.S. airlines, pilots, and manufacturers, various government organizations, and a consumer interest group. The comments largely favor the general intent of the rule but since the vast majority of comments include recommendations for revision of one or more sections, it is difficult to categorize the comments as a concurrence or noncurrence with the proposals in the notice. The problem of resolving the comments is compounded by the fact that any attempt to favorably resolve or adopt some suggestions would contradict or cause further complications with others. Although many commenters identify areas in which revisions should be made in the rule, very few offer specific suggestions that would resolve the alleged problem without making the rule so general that it would have little or no effect or contradict some other viewpoint. These issues are discussed in subsequent paragraphs referring to specific comments on the proposed rule.

It should be noted, however, that most comments submitted reflect a good appreciation for both the technical aspects of these rules and the difficulty of regulating in this area, as well as the need for amendment of these regulations. A number of commenters indirectly reinforce the need for rule making in this area because their comments show a misunderstanding of the application of the previous rules, and two commenters appear to misunderstand the rule to the point where they might be conducting operations in violation of the current rules.

Category II and Category III Operations

To appropriately address current FAA and industry practices and achieve uniformity of applications, the FAA is amending the former § 91.6, Category II operation: general operating rules, to extend its requirements to Category III operations. In general, Category III operations are conducted in accordance with an approved instrument approach procedure in visibility conditions less than 1,200 feet runway visual range (RVR) as described in FAA advisory circulars and International Civil Aviation Organization standards and recommended practices. A conforming change is made in Part 1 to include a definition of Category III operations. Previous changes to § 91.6, involving Category II operations, were made when the FAA did not have sufficient operating experience available to include Category III provisions. This is no longer the case since U.S. Category III operations have been conducted for over 8 years and regulatory safeguards similar to those for Category II operations are appropriate because administratively both types of operations are implemented in a similar way. For Parts 121, 125, and 135 operators, Category II and Category III authorizations are made under operations specifications provisions in those parts. Part 91 operators obtain letters of authorization from FAA district offices. For § 91.6(b) to apply to both Category II and Category III operations, references to ground equipment, inoperative components, and specific RVR locations and RVR readings are deleted. However, a minor change from the revisions proposed in the notice in paragraph (b) is made to delete additional references to ground components. Based on commenters' suggestions and further FAA review, the specific list in the former § 91.6(b), second sentence, is unnecessary because it is redundant to either the procedure itself, the specific authorization to conduct the operation, or because any adjustments to minimums are published in the Notices to Airmen. Including these references in § 91.6 is unnecessary because RVR inoperative components and ground equipment requirements are specifically provided for in the revised § 91.116(k), approved instrument approach procedures under Part 97, and Category II and Category III authorizations, when appropriate.

Section 91.6(d) is revised to provide definitive guidance for the pilot conducting the approach by explicitly stating those visual references the sighting of which permits the continuation of an approach below the authorized DH, when the approach procedure provides for a DH. The visual references are the same as those required in the revised § 91.116, with the exception of the runway end identifier lights and visual approach slope indicator (VASI) which are not appropriate visual references for a Category II or Category III operation. VASI's and runway end identifier lights generally are installed on runways which do not have electronic glide slope guidance.

Under § 91.6(d)(2)(i) the approach lights may be used as a visual reference to 100 feet above the touchdown zone elevation. Thereafter, the approach lights may be used as a visual reference for continued descent only if either the red terminating bars or the red side row bars also are distinctly visible and identifiable. This provision is appropriate because of the characteristics of approach light systems with sequenced flashing lights in Instrument Landing System Category I configuration (ALSF I) or Category II configuration (ALSF II) which are designed so that the pilot should see these visual references during a Category II approach if at least landing minimums weather conditions are present. Either the ALSF I or ALSF II approach light system may be used at present for Category II operations.

The pilot should see one of the visual references specified in § 91.6(d)(2): (1) at, or before reaching, 100 feet above the touchdown zone during a Category II approach, or (2) at, or before DH during a Category III approach which requires use of a DH. Therefore, if the pilot does not see one of these visual references, Category II and Category III approach procedures that use a DH require the pilot to execute a missed approach.

One commenter states that sighting of the red terminating bars of an ALSF I approach light system may not be certain in cases of wide-body aircraft conducting a Category II approach when weather is at minimums. While this may be valid in certain unusual instances, the requirement to see the red terminating bars as a condition for continuation below 100′ is necessary to ensure that appropriate visual references is present. Further, this situation is rare because only a few aircraft types are involved, and weather conditions would have to be uniform, and exactly at minimums for this situation to occur. Further, only some runways used for Category II have the ALSF I lighting system, and the FAA is in the progress of upgrading the ALSF I approach light systems to the ALSF II configuration for which the situation described by the commenter does not occur.

For Category III approaches which do not specify a DH, any necessary provision for application of landing minimums will be listed in the operations specifications or letter of authorization covering the operation. A number of commenters express concern relative to the fact that proposed § 91.6 does not clearly distinguish between fail-passive Category III operations which apply a DH and fail-operational Category III operations without a DH. A new § 91.6(f) is added to clearly distinguish and acknowledge the requirements for operations without a DH. An additional qualification is also added to § 91.6(c) to clarify that the decision height provision of § 91.6(c) does not apply to those Category III operations which do not use a decision height.

Commenters suggest, and the FAA agrees, that a further clarification is necessary for terminology previously used in § 91.117(b)(1) and proposed under §§ 91.6(d)(1), 91.116(b)(1), and 121.651(c)(1) regarding a normal descent to the runway. In addition to the former provision that for continuation of a descent the aircraft must be "continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers," another provision is added. The phrase "and where (such a) descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing" is added to clarify the intent of the former wording requiring a "normal approach to the runway of intended landing". The provision is applied for all landings in Category II or Category III and for Part 121 and 135 operations. For Part 91 and 125 operations, in other than Category II or Category III landings, this provision is not mandatory because there are aircraft types, runways, and circumstances where the additional requirement may not always be necessary for safety. Thus, the provision of § 91.116(c)(1) for touchdown in the touchdown zone is limited to Part 121 and 135 operators and for all approaches in Category II and Category III. However, it should be noted that compliance with the provision to "touchdown in the touchdown zone" is a good operating practice for all operations. The fact that it is not mandatory for Part 91 operations should not be taken as an encouragement to complete an approach by a steep descent and touchdown beyond the touchdown zone because visual references on an approach such as a nonprecision approach are not acquired until well after passing the visual descent point (VDP), or near the missed approach point.

Use of the word "touchdown" in the context of § 91.6(d)(1), § 91.116(c)(1), or § 121.651(d)(1) regarding the requirement for a normal descent to a landing is appropriate to denote the particular event (touchdown) which must take place within the touchdown zone.

Use of the word "landing" in this instance could be incorrectly taken to include other siutations such as flare or rollout to a full stop, a touch and go, or landing to the point of turnoff from runway which may or may not completely take place within the touchdown zone. Thus the word "touchdown" is used in § 91.6(d)(1) and §§ 91.116(c)(1) and 121.651(d)(1) even though the word "landing" is retained in other provisions of §§ 91.6, 91.116, and 121.651.

Other comments on the proposed changes to §§ 1.1 and 91.6 are generally supportive. A number of minor revisions were suggested such as including in the definition of "Category III operations" in § 1.1 the term "landing on" the runway in addition to an "ILS approach" to the runway. This suggestion is adopted since Category III operations specifically provide for safe rollout in reduced visibilities as well as a safe approach to touchdown. However, it should be noted that the case of a Category III approach which terminates in a missed approach rather than a landing is still considered to be a Category III operation even though a landing may not be completed.

Based on other comments, the words "straight-in" in proposed § 1.1 in conjunction with an ILS approach are unnecessary for the definition of a CAT III operation since the other type of approach is a circling approach and there are no CAT III circling approaches. Thus the term "straight-in" is deleted.

References to Part 125 are added to §§ 91.6 and 91.116 to be consistent with issuance of the new Part on October 2, 1980. Part 125 is effective February 3, 1981.

The changes to §§ 1.1 and 91.6 are adopted as proposed and discussed above to uniformly apply the criteria used under current operations specifications and letters of authorization and appropriately update the rules to be consistent with current FAA and industry practice.

Landing

Section 91.116(b) prohibited a person operating an aircraft (except a military aircraft of the United States) from landing that aircraft using a standard instrument approach procedure prescribed in Part 97 unless the visibility is at or above the landing minimum prescribed in that Part for the procedure used. The revised rule clarifies this point to specify that no pilot may operate an aircraft below MDA or DH unless the "flight visibility is not less than the visibility prescribed in the standard instrument approach procedure being used." This revised requirement is necessary to make it clear that the visibility referred to is the visibility from the aircraft. Section 91.116(c)(2) and (c)(3) also make it clear that the pilot must have this flight visibility from descent below MDA or DH until touchdown.

In particular need of clarification is the phrase "other markings identifiable with the approach end of the runway" found in the former §§ 91.117(b)(2) and 91.6(c)(2). In some instances, pilots interpret this phrase to include towers, smoke stacks, buildings, and other landmarks which may be located far from the end of the runway, and pilots may be descending below the MDA using these landmarks. This language also has been interpreted erroneously by some pilots to allow the use of a series of landmarks as progress points for instrument approaches. Use of such landmarks can result in mistaken identification of position or aircraft flight path.

To correct these practices, the revised rule specifies the visual references which are intended to allow descent below MDA or DH. The rule now precludes use of references not listed, which under the previous rule may sometimes have been used as the basis for continued descent even though they were not appropriate. Accordingly, revised § 91.116(c) prohibits descent below MDA and the continuation of an approach below DH unless at least one of the following is distinctly visible to and identifiable by the pilot for the intended runway: approach light system; threshold; threshold markings; threshold lights; runway end identifier lights; visual approach slope indicator; touchdown zone or touchdown zone markings; touchdown zone lights; runway or runway markings; or runway lights.

In Notice 80-4 the words "clearly visible" are used. However, commenters note, and the FAA agrees, that in low visibility operations visual references could rarely be considered clearly visible in the strict sense of the word due to factors such as the distortion of rain on the windshield, backscattered light of landing lights, and other reasons. The words "distinctly visible and identifiable" were suggested by commenters and are adopted because they appropriately denote the intention that the visual references be discrete and unmistakably identifiable. The change from "clearly visible" to "distinctly visible and identifiable" should not be taken to mean that descent below MDA or DH can be based on general glow of approach lights through a layer of fog or other obscurations where the visual references themselves are not discretely identifiable.

In accordance with concerns expressed by several commenters, an exclusion is added to § 91.116(c)(3) which limits applicability of this provision to approaches other than Category II or III. This is necessary to address possible misinterpretations of the applicability of § 91.116(c)(3) regarding Category II and Category III visual reference requirements. The commenters note, and the FAA agrees, that visual aids such as runway end identifier lights or VASI are not appropriate aids on which to base continuation of a Category II or Category III approach and that operations specifications, letters of authorization, or § 91.6(d)(2) provide the means to address any necessary limitations or conditions that may be appropriate in lieu of § 91.116(c)(3).

To preclude premature descents and unnecessary maneuvering at low altitudes, an additional requirement is added to § 91.116(b) for straight-in, nonprecision instrument approach procedures. For approaches which incorporate a VDP, the rule provides that the pilot may not descend below MDA until the VDP is reached if the pilot has the means to establish that point and if a normal descent to the runway can be made from that point. However, since the Department of Defense, Air Transport Association, and other commenters express concern over certain aspects of the VDP provisions of § 91.116(b)(2) as proposed, an additional exception is added. The comments suggest that the inflexible provisions of the proposed rule limit initiation of descent prior to reaching the VDP, which may adversely affect safety in cases where descent prior to the VDP is necessary to maintain a normal descent profile to the runway. A review of these comments results in the identification of cases where certain combinations of aircraft types, approach speeds, flap settings, and descent rate capability taken with possible VDP placement could possibly lead to abnormal descents from MDA to the runway if strict compliance with the rule as proposed in the notice is necessary. The commenters note, and the FAA agrees, that literal compliance with the proposal to "never descend until reachng the VDP" could adversely affect safety in unusual cases where the normal descent gradient and use of normal procedures requires the initiation of a descent shortly before reaching the VDP for some aircraft types or circumstances. Examples of situations in which it may be necessary for a pilot to descend shortly before reaching the VDP would be the case of an aircraft making a no flap approach, or an aircraft that must maintain a more shallow descent angle to provide for power settings compatible with engine anti-ice requirements. Therefore, the rule allows an exclusion in cases where literal compliance with the requirement to delay descent until passing the VDP is not appropriate for certain aircraft because it would lead to an abnormal descent path to the runway, high rates of descent, or other unusual piloting procedures if descent is delayed until reaching the VDP.

One commenter questions the applicability of the VDP provisions of proposed § 91.116(b)(2) to Part 121 operations because the VDP provisions were not repeated in proposed § 121.651. Since no exclusion of particular operations was proposed, the VDP provisions of § 91.116(c)(4) as adopted apply to Part 91, 121, 125, 135 and other operators conducting a Part 97 approach procedure. However, to clarify this issue and prevent further misunderstanding in the special case of continuation of an approach in deteriorated weather, VDP provisions are repeated in § 121.651(c)(4).

In § 91.116(c) the qualification "where an MDA or DH is applicable" is added to clearly relate the use of the MDA or DH to the specific procedure used. In cases where both an MDA or DH are provided in a single procedue, such as an ILS or localizer approach, or where either a DH or MDA is not provided, this qualification clarifies the use of either the MDA or DH as appropriate to the specific type of approach used.

The terminology used in § 91.6(d)(2)(i) regarding the limitations on use of approach lights as an exclusive condition for descent below 100′ is added for consistency in §§ 91.116(c)(3)(i), 121.651(c)(3)(i), and 121.651(d)(3)(i) because of the design of lighting systems and instrument approach procedures. When an aircraft is at or below 100′ above the touchdown zone, the red side row bars on an ALSF II approach light system, red terminating bars of the ALSF I approach light system, or the threshold or other references listed in § 91.116(c)(3) should be in sight. If the approach is flown to a runway which does not have one of the two approach light systems mentioned above, then at or below 100′ one of the other references in § 91.116(c)(3) must also be in sight to continue descent to a landing. For other than Category II or III, regardless of the type of straight-in or nonprecision approach flown, when at or below 100′ above the touchdown zone, one of the visual references specified in § 91.116(c)(3)(ii) through § 91.116(c)(3)(x) should be visible if flight visibility is at or above the specified minimums. Conversely, if the approach lights are visible, but red terminating bars or red side row bars are not visible either due to poor visibility or because they are not installed, and the other visual references specified in § 91.116(c)(3) are not visible either, then regardless of the type of approach (other than Category II or III) the flight visibility is substantially less than minimums and continued descent below 100′ may not be safe and is not appropriate. Further, to apply the provision to see the red side row bars or red terminating bars only to runway may occur during rare instances in which a missed approach must be conducted from a very low altitude. This inadvertent contact may result even though proper procedures are used. This contact is not considered to be landing the aircraft within the meaning of § 91.116(d), and special piloting techniques or procedures are not required to avoid contact by the wheels with the runway under these circumstances. Therefore, most of the detailed references to touchdown are deleted in favor of the word "land" in §§ 91.6, 91.116, and 121.651. Retention of the word "touchdown" in §§ 91.116(c)(1) and 121.651(d)(1) is discussed in the section under § 91.6(d)(1).

One commenter indicates that retaining the provision for pilot determination of visibility does not improve safety because of the possibility of distraction of the pilot. However, there is no evidence that this responsibility alone has caused an unsafe condition. In fact, accident statistics and reports indicate the opposite is true. Causal factors of some accidents appear to be related to continued pilot descent below MDA or DH with only limited visual contact and inadequate reference to safely continue the approach to a landing. Thus, §§ 91.116(c)(2) and 91.116(d) retain the concept of pilot determination of the specified visibility and clarify the frequently misunderstood point that the visibility referred to is flight visibility.

Missed Approach Procedures

Additional missed approach requirements are added in § 91.116(e) to preclude unsafe situations resulting from misidentification of ground references. For the same reasons stated for retaining of the provisions of flight visibility in §§ 91.116(c)(2) and 91.116(d), a missed approach is required whenever the flight visibility required by paragraph (c)(2) is lacking, even though the pilot may have one of the visual cues required by paragraph (c)(3) distinctly in sight. A pilot is also required to follow an appropriate missed approach procedure whenever an identifiable part of the airport is not distinctly in sight during a circling maneuver.

Some commenters express concern that the FAA's use of the general term "identifiable part of the airport" in the circling maneuver provision of § 91.116(e) is inconsistent with the FAA's statement that the former § 91.117(b)(2) regarding "markings identifiable with the approach end of the runway" was inadequate and needed revision. However, these two cases are not contradictory. Formerly there were no regulatory provisions during a circling approach restricting a pilot to maintain visual contact with the airport. The revised rule adds the "identifiable part of the airport" requirement to preclude situations where the circling maneuver could be conducted far from the airport with the possibility of misidentification of landmarks not associated with the airport. Since the circling approach provisions of § 91.116(e) specifically refer to a "part of the airport," the misinterpretation associated with the former § 91.117(b)(2) should not occur.

Some commenters express concern that the wording of proposed § 91.116(e) requiring visual contact with the airport during a circling approach might be interpreted to unnecessarily restrict pilots in the selection of a circling maneuver after establishing visual contact and while maneuvering to the point of descent from MDA for final alignment with the landing runway. However, revised § 91.116(e)(2) does not impose additional restrictions on pilots regarding selecting the direction of turn or the type of turn, such as a teardrop, 80°-260° turn, or standard traffic pattern. Such choices of a circling approach maneuver should be selected by the pilot based on good operating practice and are restricted only by limitations that may be specified in the standard approach procedure itself. There is no implication that the rule requires any particular type or direction of turn to maintain visual contact based on angle of sight or windshield view for the pilot or copilot depending on which pilot may be flying the approach or other such factors. Good operating practices described in the Airman's Information Manual or other instrument flight training references may continue to be used and are encouraged.

Another subject on which comments were received relates to the § 91.116(e) requirement to immediately initiate an "appropriate" missed approach if visual reference is lost. The commenters correctly note that it is unsafe in some cases to initiate an immediate missed approach which strictly follows the published procedure. This, however, is the reason why the word "appropriate" missed approach is used. Under § 91.116(e) pilots must continue to be aware that the published missed approach procedure provides obstacle clearance only when the missed approach is conducted on the missed approach segment from or above the missed approach point. If the aircraft initiates a missed approach at a point prior to the missed approach point, from below MDA or DH, or on a circling approach, obstacle clearance is not necessarily provided by following the published missed approach procedure. In this situation obstacle clearance is the pilot's responsibility. When a missed approach is initiated in this situation, the pilot must consider other factors such as the aircraft's geographical location with respect to the prescribed missed approach point, direction of flight and/or minimum turning altitudes in the prescribed missed approach procedure, aircraft performance, visual climb restrictions, charted obstacles, IFR departure procedures, takeoff visual climb requirments as expressed by nonstandard takeoff minima, or other factors not specifically expressed by the approach procedures. During a missed approach, the aircraft must be on, or must reintercept, a published segment of the procedure at or above the altitude specified in the procedure, and must maintain a climb gradient equal to or greater than the standard (1:40 or 2.5%) unless otherwise published, for obstacle clearance to be ensured by the published missed approach procedure alone. For these reasons the wording of former § 91.117(b)(2) with respect to an "appropriate" missed approach is retained in § 91.116(e).

Due to the need for exclusions approved by the Administrator, and to consolidate provisions for alternate approvals, the authority of the Administrator in sections of § 91.116, for approval of a circling maneuver where a part of the airport may not be in sight is removed from this section. Such approval is now included under § 91.116(a) in the general provisions for alternate approvals by the Administrator for § 91.116(a) through (k).

Procedure Turns

As described in the notice, due to the possibility of misinterpretation, the current limitation on procedure turns is revised in § 91.116(j) to more clearly require the pilot to obtain an Air Traffic Control (ATC) clearance before making a procedure turn under specified conditions. The former § 91.116(h) required the pilot simply to advise ATC of his intention to make a procedure turn when final clearance is received. The revised rule specifies that such a clearance must be issued by ATC. This precludes situations in which the pilot advises ATC but due to communication difficulties ATC does not receive the request or cannot comply with the pilot's request. In addition, the reference to the designation "FINAL" in the former § 91.116(h), which is no longer used in the context of limitations on procedure turns, is deleted from this provision.

The words "final approach course" have been adopted in § 91.116(j) to be consistent with terminology used in instrument approach and air traffic control procedures rather than the term "final approach segment" used in the notice.

A question was raised regarding applicability of revised § 91.116(j) for a case where the segment of an instrument approach being flown does not specify a "No procedure turn (No PT)" limitation, but other transition segments for the procedure not used by the aircraft do have the limitation. A procedure turn may be made following segments not limited by the "No PT" restriction, but a procedure turn is prohibited unless ATC clearance is received for those segments to which the "No PT" limitation applies. No major comments suggest changing this proposed provision and it is adopted as proposed.

Inoperative or Unusable Components and Visual Aids

The revised rule incorporates the substance of § 91.117(c), Inoperative or unusable components and visual aids, into § 91.116(k), except the inoperative component tables are deleted. Making the increased minimums mandatory by those tables is unnecessary because the essential limitations are uniformly being incorporated into the instrument approach procedures under Part 97 where necessary.

A number of commenters question the philosophy and method of dealing with the middle marker as an inoperative component of an ILS as proposed. A major supplier of instrument approach procedure charts points out that it is unnecessary to uniquely consider middle marker outages in landing rules. Instead the regulatory means for accommodating middle marker beacon outages should be the same as that used for other components such as approach lights. Further consideration of this point indicates that the comment is valid and that middle marker inoperative situations are not unique in terms of the need for adjustments to minima. Safety can be maintained and such outages can be more appropriately handled by the same administrative means as other inoperative components, such as through the U.S. standard for Terminal Instrument Procedures, in combination with inclusion on FAA 8260 series forms which define Part 97 instrument approach procedures and establish minimums. This provides an equivalent regulatory basis for any adjustments necessary to minimums due to the middle marker being inoperative, but allows the adjustments to be processed and implemented with the same procedures as for approach lights or other items. It also standardizes, simplifies, and increases the likelihood of correct application of these provisions by pilots. Other commenters also point out that provisions for inoperative components, including unusable middle markers, may be adequately addressed through Part 97 instrument approach procedures as defined by FAA Form 8260. Therefore, inoperative component tables may continue to be published as a description of the adjustments made to approach procedures, but they would be based on United States Standard for Terminal Instrument Approach (TERPS) or used for training or informational purposes since the procedure itself specifies any necessary limitations. Accordingly, the middle marker inoperative adjustments are removed from § 91.116 and any necessary adjustments are accommodated in the same way as lighting or other inoperative components as part of the Part 97 instrument approach procedure or Notices to Airmen.

Since § 91.116(f) is deleted, the Department of Defense suggestion to add a military exclusion for the middle marker inoperative situation in the revised § 91.116 is unnecessary. Any special provisions for military use of civil approach procedures which specify minimums adjustments may continue to be appropriately addressed or waived by the military as necessary, and development of military standard approach procedures may be done in accordance with applicable military directives. Other than for explanation of civil approach procedure applicability and use when military aircraft land at civil airports, no provision of § 91.116 regarding elimination of the inoperative components table from § 91.116(f) requires a change to military procedures.

ILS Components

New § 91.116(k) describes the basic components of an ILS and specifies what airborne and ground equipment may be substituted for those components. As proposed, these components include the localizer, glideslope, outer marker, and middle marker. For consistency, provisions are also added to the rule to address the applicability of the inner marker for Category II and Category III operations since commenters appropriately note that the former § 91.117(c) and the notice did not specifically provide for these cases. Applicability and substitution provisions are added to § 91.116(k) for the inner marker for Category II and Category III to ensure that the provisions of § 91.116(k) are complete and consistent with current practice.

Other Comments on Section 91.116

In several provisions of § 91.116, the phrase "except a military aircraft of the United States" is added to accommodate Department of Defense comments and requirements.

Some comments indicate that the rule is too specific and should be kept only as a good operating practice, or that certain provisions of the rules should not apply to particular operators such as helicopter operations. However, comments such as these do not have supporting evidence and are vague or general and request further relaxation of the rule. It is not clear how the FAA can delete flight visibility and visual reference requirements from § 91.116 and still provide the necessary safety provisions in view of the poor accident and incident record discussed in Notice 80-4. The purpose of this rulemaking is to clarify and make changes to the rules to increase safety. Therefore the provisions of § 91.116 described in the notice are retained with the revisions noted in the previous paragraphs. The revisions include clarification of flight visibility, specific listing of visual references, incorporation of provisions limiting descent prior to reaching a VDP, and deletion of the inoperative components table in § 91.117 as redundant with Part 97, and provisions of TERPS.

Revision of Part 121

For consistency, § 121.651 combines the former takeoff and landing weather minimums for domestic and flag air carriers (§ 121.651) and those for supplemental air carriers and commercial operators (§ 121.653). For the purposes of this section, the operations of domestic, flag, and supplemental carriers are sufficiently similar that the distinction in takeoff and landing minimums is no longer necessary. This is consistent with the reduced emphasis on distinctions among these carriers which results from the Airline Deregulation Act of 1978 (P.L. 95-504) and is responsive to the President's goal of regulatory simplification. Comments on the simplification of these rules are generally supportive. One commenter suggests even further reorganization of these rules to provide separate sections for takeoff and landing minima and to simplify the redundancy between Parts 91, 121, and 135 for takeoff and landing under IFR. Although the FAA recognizes that such reorganization may have merit, it does not appear practical at this time to make such changes without further public comment. Additional action on such proposals may be a subject for future rulemaking.

Section 121.651(a) prohibits a pilot from beginning takeoff when the weather conditions reported by the U.S. National Weather Service, a source approved by that Service, or a source approved by the Administrator, are less than those specified for the takeoff airport in the certificate holder's operations specifications or, if the operations specifications do not contain minimums for the airport, the minimums specified under the Part 97 procedure. This allows weather reports by sources other than U.S. National Weather Service or sources approved by it, but which are approved by the Administrator, to apply for takeoff minimums at foreign airports. Thus this change uniformly applies takeoff minimums where weather is reported by sources approved by the Administrator, as well as at locations having U.S. National Weather Service-operated or approved weather facilities. There were no specific comments identifying problems with this section and the section is adopted essentially as proposed.

Proposed § 121.651(b) clarifies that a pilot at an airport within the United States or at a U.S. military installation which has one of the three specified acceptable weather report sources may not continue an approach past a final approach fix or, if a fix is not established in the standard instrument approach procedure, begin the final approach segment of an instrument approach procedure, unless a weather report is issued for that airport. At foreign airports, weather services for Part 121 operators are approved by the Administrator rather than the U.S. National Weather Service. Thus § 121.651(b) allows initiation of the final approach segment of instrument approaches at foreign airports not having weather reporting facilities under the jurisdiction of the U.S. National Weather Service.

The U.S. National Weather Service expresses concern regarding the language used in § 121.651(b) which states that no person may continue an approach past a final approach fix unless a weather report is issued by the U.S. National Weather Service, a source approved by that service, or a source approved by the Administrator. The concern relates to the fact that it approves weather observations within the United States, whereas the proposed rule also provides for use of sources approved by the Administrator rather than the National Weather Service. However, the provision for approval of the Administrator is necessary in this case, and must be considered in context with current § 121.101(b)(1), and (b)(2), and § 121.119. Sections 121.101 and 121.119 state the conditions under which the Administrator may approve sources of weather reports. Section 121.651(b)(1) and (b)(2) must address operations at airports other than those at which the National Weather Service approves weather observations as provided in § 121.101 and § 121.119. It is therefore necessary to provide for approval of a report by the Administrator in § 121.651 for clarity, to be consistent with establshed practice, and to be compatible with §§ 121.101 and 121.119.

In § 121.651(b), the provision that "no pilot may . . . *continue an approach past the final approach fix, or where a final approach fix is not used,* begin the final segment of an instrument approach procedure . . ." (emphasis added) is added to provide for the situation where a final approach segment may begin prior to a final approach fix depicted on the procedure. As proposed in such situations an aircraft waiting for a weather improvement above minimums before commencing an approach may have incorrectly held at a point further from the airport than intended because of a misinterpretation of the rule. The adopted rule clarifies the intent that the aircraft in such instances may proceed at least to the depicted final approach fix while waiting for a weather improvement even though some final approach segment in the procedure may begin earlier.

A typographical error regarding the incorrect use of the word "or" versus the correct word "and" is corrected between § 121.651(b)(1) and § 121.651(b)(2) in accordance with the original intent of the provisions of these sections discussed in Notice 80-4.

Sections 121.651(c) and (d), which govern the receipt of a later weather report indicating below minimum conditions and initiation of an approach when weather is below minimums if ILS and precision approach radar (PAR) are used simultaneously is revised. Section 121.651(c) provides that a pilot who has begun the final approach segment of an instrument approach procedure to an airport in accordance with § 121.651(b) and then receives a below minimum report or a pilot who initiates the approach under § 121.651(d) may continue the approach and touchdown if the same safeguards prescribed in § 91.116(c) are met.

The applicable provisions of § 91.116(c) are repeated in §§ 121.651(c) and 121.651(d) to clarify and simplify use of this section without the need to cross reference § 91.116(c). Sections 121.651(c) and (d) are also revised from the wording used in Notice 80-4 to retain the word "landing" in lieu of the word "touchdown" for the same reasons explained in the discussion of § 91.116(d).

Section 121.651(c) provides additional safety in case of deteriorating weather by revising the conditions for continuation of an approach when variable weather may go below minimums after the aircraft has passed the final approach fix. The former

§ 121.651(d)(2) required that aircraft on a nonprecision approach must have reached MDA as a condition for continuation of an approach. This is believed in some instances to have led to aircraft descending to MDA at higher than normal descent rates after passing the final approach fix when weather was variable and deteriorating, to be able to continue the approach if weather was subsequently reported below minima. This practice could encourage high sink rates near the ground and unstabilized approaches due to the pilot's effort to reach MDA soon after passing the final approach fix. Accordingly, § 121.651(c) only applies the condition that the aircraft be past the final approach fix to continue an approach in the situation of deteriorating weather, for both precision and nonprecision approaches, thus encouraging stabilized descents and use of normal descent gradients.

As proposed, the exception of § 121.651(d), allowing initiation of an approach when weather is below minimums if ILS and PAR are simultaneously used, is retained. However, commenters correctly note that air carriers apply this provision rarely and only at a very few airports due to PAR being phased out at civil airports. Further, it is suggested that these provisions are no longer appropriate for air carrier operations. As a result, further revision or deletion of § 121.651(d) may be considered in future rulemaking but the provision is retained at this time.

Section 121.651(d) applies the same safeguards as in § 91.116(c) with the exception of paragraph (c)(4) which relates to operations prior to reaching a VDP in straight-in, nonprecision instrument approach procedures and does not apply in the instance of a precision approach.

The revisions to §§ 121.651(c) and (d) are necessary to be consistent with the revised § 91.116. They upgrade and clarify the requirements for instrument approaches for air carrier operations. They are adopted substantially as proposed in the notice.

Foreign Airports

Finally, a new § 121.651(f) is added to require a pilot making an IFR takeoff, approach, or landing at a foreign airport to comply with the applicable instrument approach procedures and weather minimums prescribed by the authority having jurisdiction over the airport, unless otherwise authorized in the certificate holder's operations specifications. This ensures that U.S. operators comply with appropriate foreign governmental regulations when conducting international operations. No specific comments were received on this section and it is adopted as proposed.

Pilots Continuously Determining Flight Visibility

Based on comments, difficult issues to resolve are the various sections dealing with requirements for the pilot to continuously determine that the flight visibility is not less than the visibility specified in the procedure used (§§ 91.116(b)(3), 121.651(c)(3) and 121.651(d)(3) in the notice and §§ 91.116(c)(2), 121.651(c)(2), and 121.651(d)(2)). Comments on these issues range from strong support for the concept and wording to significant disagreement with the concept. Some commenters state that this provision could adversely affect safety. A main objection to this provision centers on the interpretation of the phrase "continuously determine" flight visibility. It is suggested that this might be interpreted by some to mean that the pilot or pilots cannot conduct a normal cross check of cockpit instruments while below MDA or DH. Use of the term "continuous" in this context is inappropriate if it is taken to mean that scanning of instruments such as airspeed, altitude, and vertical speed is not acceptable in conjunction with scanning of outside visual references. Such an interpretation is certainly not the intent, and if this interpretation is applied, it could very well be detrimental to flight safety. Accordingly, the word "continuously" is dropped from these sections as being potentially confusing and redundant to § 91.116(e) which provides for conditions in which a missed approach must be initiated.

Another point raised in the comments is the fact that pilots do not have a means to numerically assess flight visibility and compare it with the published minimums and that the list of visual references specified in § 91.116(c)(3)(i) thru (x) is adequate alone. Although these comments are to some degree valid in the sense that visual estimation of visibility by either a pilot or ground observer does require judgment and may not necessarily be numerically exact, it nevertheless remains a concept that provides for the necessary safety during landing. Such assessment of visibility has been the basis for many years for both ground weather observations and pilot use in compliance with the landing minima and visual flight rules. Although alternative concepts such as mandatory use of ground-reported visibility or RVR have been suggested, no other concept adequately replaces the provisions of §§ 91.116(c)(3) and 91.116(d) and provides equivalent safety without further restricting flight operations. The intent of §§ 91.116 and 121.651 is not to remove the requirement for assessment of visibility, but to further clarify its applicability by clearly specifying the often misunderstood point that the rule refers to "flight" visibility as opposed to ground-reported visibility. The associated changes to §§ 91.6, 91.116, and 121.651 provide an increase in safety by explicitly listing the references that must be in sight as a condition for continued descent below MDA or DH even though the pilot may have determined that the required flight visibility is present. Conversely, having one of these specific references in sight is not sufficient alone to safely continue descent if the flight visibility is below minimums. Thus the addition of a specific list of visual references in § 91.116(c)(3) further clarifies the runway environment terminology previously used in § 91.117(b)(2) rather than the long-standing concept of use of flight visibility.

Associated comments relate to the need for slant visual range measurements, and to the relationship between § 121.655, which addresses the precedence of ground-reported RVR in weather reports, and 121.651. A commenter indicates that minima are not and cannot be measured in terms of slant visual range, and that horizontal flight visibility at altitude may be less than the authorized reported visibility observed at ground level.

Regarding the first point, this statement is partially true. The FAA acknowledges that slant visual range (SVR) is not used now, and the FAA agrees with the commenter that there are presently no ground measurement systems available which are practical for operational measurement of SVR. The FAA plans to continue to monitor technical developments in this area for any advances which may overcome the many technical problems and practical limitations which remain. Even if numerous problems with ground measurement of SVR are resolved, it is not clear that having this information in addition to RVR contributes to or is essential for safe descent below MDA or DH. In a number of accident and incident cases, pilots have continued the approach below MDA or DH in spite of the fact that little or no visual reference existed and the pilot observed that slant visibility was poor. It is not clear how providing ground reports of SVR to the pilot would have prevented the accident or incident since the pilot has actual slant visibility information which could not have been provided by a ground sensor as accurately or in real time. Conversely, if the pilots applied the conditions specified in § 91.116(c) which clarifies the applicability of the use of flight visibility and lists acceptable visual references for continuation of descent, the continued descent below MDA or DH in marginal visibility well below that specified in the standard instrument approach procedure would clearly have been inappropriate.

The FAA also does not agree with the commenters' views that assessment of flight visibility is impossible for pilots to do. As pointed out in earlier discussions, for many years pilots have been making such judgments to safely operate aircraft, as well as to comply with former §§ 91.105, 91.116, 121.651, and 121.653, even though such judgments may not be numerically exact. For example § 91.105 requires pilots to estimate horizontal visibilities of 1 mile and 3 miles and to estimate horizontal and vertical distances from clouds of 500 feet, 1,000 feet, and 2,000 feet. Sections 91.116, 121.651, and 91.105 all require pilots to estimate flight visibility in situations where slant range and other factors such as horizontal visibility, aircraft height above ground, obstruction due to fog, rain or snow, scud, low cloud or other restrictions to visibility must be considered.

Regarding the point that horizontal visibility at altitude may be less than the authorized reported visibility at ground level, the FAA agrees. However, this is not sufficient reason to remove the requirement for assessment of flight visibility from §§ 91.116 or 121.651. In fact, the possibility of this situation is an important reason why revised §§ 91.116 and 121.651 continue to require assessment of flight visibility. Technical literature[1] from a variety of sources suggest instances where slant visibility as seen by the pilot can be very much less than the horizontal visibility at ground level. Thus if the requirement for flight visibility assessment by the pilot is removed, it would be permissible to continue a descent below MDA or DH in the unsafe situation where visibility is reported above minimums and one or more visual references listed in § 91.116(c)(3) may be distinctly in sight but the flight visibility is much less than the visibility specified in the procedure and is inadequate to safely complete the landing.

In all of these cases, the commenters' recommended resolution of the issues appears to be less restrictive than the former rules. The previous §§ 91.116(b) and 121.651(d) required that no person land unless the visibility is at or above (greater than or equal to) the published minimums, and that for continuation of an approach in deteriorating weather for Part 121 operators, the actual weather be at or above published minimums. The commenters' suggested changes to delete sections such as § 91.116(c)(2) or § 121.651(c)(2) relating to flight visibility would lead to the rules permitting the approach to be continued in unsafe conditions.

For example, in a case where weather is reported to be above minimums, if the requirements of § 91.116(c)(2) were deleted and § 91.116(c)(3) regarding visual references alone was met by having one or more of the listed visual references distinctly in sight, a pilot could have continued the approach even though the flight visibility was very poor and much less than the published minimums. This situation is unsafe because the necessary visual reference for assessment or control of the aircraft's approach path may not be present. Other alternatives suggested by commenters, such as making ground-reported weather exclusively controlling, would require unnecessary missed approaches and diversions to alternate airports when weather is better than reported and safe for an approach and landing. The suggestion to make ground-reported RVR or meteorological visibility exclusively controlling for continuation of a descent below MDA or DH could lead to restrictions on operations with little or no overall benefit to safety. An example of this would be the case where the pilot has the listed references of § 91.116(c)(3) distinctly in sight and has determinded that the flight visibility is at or above the published minimums as in § 91.116(c)(2), but the visibility or RVR is reported below minimums due to commonly recognized weather measuring and reporting inaccuracies. In this case, the commenter's suggestion requires an unnecessary missed approach and a diversion to an alternate airport could result.

The comment that § 121.655 establishes precedence of RVR over ground-reported prevailing visibility is correct. However, the commenter's implication that this has any affect on the pilot's assessment of visibility for continuation of an approach below MDA or DH is not valid. Section 121.655 requires that the main body of the weather report, rather than other portions of the report, applies regarding compliance with § 121.651(b) for determining the weather conditions necessary for the initiation of an approach. If an RVR report is currently available, it supersedes other weather reports that may apply to initiation of an approach under § 121.651(b). It does not relieve or take precedence over the pilot's responsibility below MDA or DH to ensure that the required flight visibility exists. Once a pilot has passed the final approach fix, no provision of § 121.655 supersedes the pilot's responsibility to assess visual reference below the MDA or DH. Thus even though a report of RVR may indicate that weather is above minimums and the RVR reports take precedence over other weather reports under § 121.655 for initiating an approach, when below MDA or DH the pilot must, in his judgment, determine that the actual weather conditions are at least equal to the prescribed minimums to continue an approach. Conversely, once past the final approach fix, if the pilot determines that the visual requirements of §§ 121.651(c) and 91.116(c), (d) and (e) are met, the approach may continue and a landing may be made.

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[1] Copies of these documents are contained in the docket.

It is important to note the provision to continue an approach below MDA or DH if flight visibility is considered by the pilot to be above minimums and one of the acceptable visual references is in sight is not an encouragement for pilots to deliberately misestimate visibility to land in unsafe conditions with ground reporting prevailing visibility or RVR reported below minimums. The FAA intends to continue to closely review the circumstances related to any landings made when weather is reported below minimums. To assess compliance with §§ 91.116(c) and 121.651(c) and for enforcement cases, the FAA will continue to consider a variety of factors such as ground-reported weather, variability of the weather, reports of other pilots who attempted or completed landings, pilots awaiting departure located in a position to judge visual reference in the area on the touchdown zone, reports of visual reference seen by other crewmembers on the aircraft, air traffic personnel, or ground observer reports, or many other such factors. Should evidence of a poor safety record continue or there be evidence of deliberate disregard of the visual reference provisions of §§ 91.116(c) and 121.651(c), the FAA will reconsider both the applicability and precedence of ground-reported visibility and RVR and the potential applicability of additional rules. If necessary, provisions similar to §§ 121.651(b), 135.225, and 125.381 may then be developed to apply to all operations.

Because of the problems identified with alternatives suggested by commenters and the fact that the primary intent of the proposal is to explicitly state the necessary visual references and make it clear that the visibility referred to is flight visibility, §§ 91.116(c), 91.116(d), 121.651(c), and 121.651(d) are adopted as discussed above.

Special Cases Requiring Authorization of the Administrator

Numerous commenters correctly identify areas in proposed § 91.116 where the Administrator must be able to approve approach procedures which vary from the provisions of § 91.116(a) through (k). For example, in the case of an aircraft operating on a straight-in or circling approach, it is sometimes necessary for an instrument approach procedure to provide for a visual segment from the missed approach point to the airport, as at numerous Alaskan airports and airports such as Palm Springs, California, and Missoula, Montana. Thus the Administrator must retain the authority to approve instrument approach procedures where the pilot may not necessarily have one of the visual references specified in § 91.116(c)(3) in sight. There are other cases where the Administrator's authority to issue special provisions must also be available to approve visual approaches, contact approaches, helicopter procedures, or other items such as waivers for all-weather takeoff and landing research and development. Accordingly, the provisions of former §§ 91.116 and 91.117 regarding the authority of the Administrator to authorize deviations is retained in § 91.116, but is consolidated in § 91.116(a) for applicability to § 91.116(a) through (k).

List of Visual References

One commenter suggests that the list of approved visual references proposed in § 91.116(b)(4) and adopted in § 91.116(c)(3) and § 121.651(c)(3) be expanded to include additional items such as lead-in lights and runway markings. In the case of lead-in lights, the comment is not adopted because there are numerous types of approach light systems, of which lead-in lights are just one type, and each would have to be listed and updated as frequent changes in these systems are made. Since lead-in lights and other such visual aids are specific types of approach lights, and are considered and approved by the Administrator to be credited in an instrument approach procedure, it it unnecessary to specifically list each type. In the case of runway markings, the difference in meaning of "runway markings" from the word "runway" is considered sufficient to warrant being included separately to clarify the rule. Runway markings generally consist of standard patterns painted on the runway surface which show the threshold, runway identification number, centerline, touchdown aiming point, and distance coding. In contrast, the term "runway" may refer only to the surface of the pavement. This may not be as distinctly visible as lights or markings, for example, during a night approach on a wet runway.

One comment suggests adding centerline lights to the list in § 91.6(b). This, however, is inappropriate and unnecessary because of the design of lighting systems. Centerline lights are intended to be installed along with touchdown zone lights, and since touchdown zone lights are set at an intensity greater than centerline lights, they should, in normal circumstances, be visible at the same time or before the centerline lights. Further, if the aircraft has inadvertently passed the touchdown zone prior to touchdown, and the touchdown zone lights or other items in § 91.6(b) are not visible but the centerline lights are visible, continued descent based on the centerline lights alone is not appropriate. Not only is it unlikely that weather is above minimums, but the pilot may also have no way of knowing how far along the runway the aircraft has traveled or how much runway remains for landing. If touchdown occurs past the touchdown zone, by the time the aircraft reaches the color-coded centerline lights at the opposite end of the runway there may be insufficient runway remaining to stop. Therefore, this item is not added to the list.

To clarify and uniformly apply the provisions regarding use of approach lights as a visual reference, the wording is standarized in §§ 91.6, 91.116, and 121.651 as "approach light systems." The question is raised by commenters whether the entire approach light system must be visible to the pilot. It is intended that the entire system need not necessarily be in view under either § 91.6 or § 91.116 when descending below MDA or DH. At the time Notice 80-4 was issued, the special description in proposed § 91.6 clarifying descent below 100′ was considered sufficient. It was not considered necessary in § 91.116 or § 121.651 because of the relatively infrequent occurrence of this situation. However, since commenters raise the issue and are uncertain as to whether "approach lights" and "approach light systems" have different meanings and whether it was necessary to see all or just part of the approach light system, the FAA has clarified the rule by adopting the wording used in proposed § 91.6 in §§ 91.116(b)(3) and 121.651(c)(3). It should be noted, however, that even only a part of the approach light system need be visible during descent below MDA or DH to 100′ above the touchdown zone elevation, the requirements of § 91.116(c) regarding adequate flight visibility must be met to continue an approach.

A question is raised regarding the intent of § 91.116(e)(1) as far as missed approaches are concerned. The commenter is uncertain as to the applicability of the rule in the case where visual references may be temporarily lost while below MDA or DH. The commenter asks whether the rule requires that a missed approach be conducted even though visual references reappear. The rule provides that any time the conditions of the rule are met, a missed approach is not required. During the time the visual references are not available below MDA or DH, however, the pilot is expected to initiate a missed approach. When below MDA or DH, any deliberate delay in initiation of a missed approach in the hope that visual references will soon reappear, is not appropriate, such as in the case of deliberate descent through low cloud, scud, or fog in which the requirements of § 91.116(c) cannot be met. If the pilot uses normal procedures, however, and does not deliberately delay taking action to transit the intermittent condition, but still has not initiated the missed approach when the visual references reappear, a missed approach is not required.

Use of Person or Pilot

Some provisions of the rules are intended to refer only to a pilot because the rule can only be used by a pilot crewmember during flight, for example sighting visual references during a landing as specified in § 91.116(c). However, other provisions of the revised rules may apply to an operator or someone other than a pilot flight crewmember, for example § 91.6(g) concerning operations specifications. In an instance such as § 91.6(g), "operation of an aircraft" may apply to other persons as well as the pilot because other persons may also be responsible for correct application of a certificate holder's operations specifications. The revised rules provide for this situation by retaining the word "person" where someone other than the pilot of an aircraft may also be involved with application of the rules, and the rules use the term "pilot" where a rule clearly is intended for use by a pilot crewmember during flight.

The Amendments

Accordingly, the Federal Aviation Administration amends Parts 1, 91, and 121 of the Federal Aviation Regulations (14 CFR Parts 1, 91, and 121) effective May 8, 1981.

(Secs. 307, 313(a), 501, 601, 601(a) and 604, Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354(a), 1401, 1421, 1421(a), and 1424); and Sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c))).

NOTE—The Federal Aviation Administration has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by writing to the person identified under "FOR FURTHER INFORMATION CONTACT:"

NOTE—This rule is a final order of the Administrator as defined by the Federal Aviation Act of 1958, as amended. As such, it is subject to review only by the courts of appeals of the United States or the United States Court of Appeals for the District of Columbia.

Amendment 91-174

Amendments of Effective Date of Part 125 and Amendments Adopted in Relation to Part 125

Adopted: January 30, 1981 **Effective: April 1, 1981**

(Published in 46 FR 10902, February 5, 1981)

SUMMARY: On January 29, 1981, the President issued a memorandum to certain agency heads directing that they issue a notice in the *Federal Register* postponing for 60 days after January 29, 1981, the effective date of regulations that have already been issued but were scheduled to become effective in the next 60 days. This amendment consistent with the President's directive, postpones the effective date of new Part 125 and related amendments from February 1, 1981, to April 1, 1981.

FOR FURTHER INFORMATION CONTACT: Harold E. Smith, Regulatory Projects Branch (AVS-24), Safety Regulations Staff, Associate Administrator for Aviation Standards, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591, telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

Background

Part 125 was published in the Federal Register on October 9, 1980, (45 FR 67214). That Part, and related amendments to Parts 43, 91, 121, 123, 135, and 145 have an effective date of February 1, 1981. On January 29, 1981, the President issued a memorandum which directs that all agencies, by notice in the Federal Register, postpone for 60 days from January 29, 1981, the effective date of all regulations that have been promulgated in final form and that are scheduled to become effective during that 60 day period. Part 125, and regulations adopted with it, fall within the scope of the President's memorandum.

The President stated in his memorandum that the establishment of a new regulatory oversight program that will lead to less burdensome and more rational Federal regulations was among his priorities as President. He indicated that this program was especially important because of the country's economic climate.

In order to give his Administration, through the Task Force on Regulatory Relief, sufficient time to implement that process and to subject to full and appropriate review many recent regulations that would increase rather than relieve the current burden of restrictive regulation, he directed the postponement of pending regulations.

Consistent with this view, I am by this notice postponing for 60 days the effective day of Part 125.

Description of These Amendments

The effective date of Part 125 and of related Amendments 43-21, 91-169, 91-170A, 121-164, 123-9, 135-7, and 145-17 is changed from February 1, 1981, to April 1, 1981. In addition, in order to preserve the application and compliance procedure timing, certain dates specified in any of the related amendments listed in the preceding sentence are revised. However, although the effective date of Amendment 91-170A is changed from February 1, 1981, to April 1, 1981, the designation date of November 29, 1980, for applicable noise rules is unchanged.

Need for Immediate Adoption

The FAA realizes that the postponement of pending regulations may not be viewed by certain persons to be in their best interest. However, in accordance with the President's directive, the economic condition of the nation is such that the government must rethink the need and expense of each new regulation. For a new Administration and any new Department head to effectively accomplish this objective, some time is needed for adequate review. Sixty days is the minimum period to accomplish such a review and the impact of such a delay will be minimal. For these reasons, the FAA is convinced that good cause exists for postponing for up to 60 days the effective date of this rule for 60 days and that the end result of such a delay, a more cohesive and effective regulatory program, is in the public interest. For similar reasons and because of this rule is scheduled to become effective very shortly, additional notice and public procedure on this change of effective dates is impracticable, unnecessary and contrary to the public interest and good cause exists for making these changes effective immediately. Since this change of effective dates must be accomplished immediately and does not involve rulemaking, compliance with Executive Order 12044 is also unnecessary.

Accordingly consistent with the President's memorandum of January 29, 1981, on Postponing of Pending Regulations, the effective dates of Part 125 is postponed until April 1, 1981.

Adoption of the Amendment

Accordingly, 14 CFR Chapter 1 is amended as follows:

1. By amending the effective date February 1, 1981, of Part 125 and Amendment Nos. 43-21, 91-169, 91-170A, 121-164, 123-9, 135-7, and 145-17 to read April 1, 1981 in each case.

(Secs. 307, 313, 601 through 611, and 1102, Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354, 1421-1431 and 1502); sec 6(c) Department of Transportation Act (49 U.S.C. 1655(c)); Title III, Aviation Safety and Noise Abatement Act of 1979 (94 Stat. 50).

Additional Actions Pending

In addition to the amendments adopted herein, the Agency has other regulatory actions as to which it has not been able to act to carry out the President's memorandum because they have been issued by the various FAA Regions. These include, but are not limited to, airworthiness directives, airspace actions, and standard instrument approach procedures. Additional postponements of these regulations will be issued in the next several days to comply with the President's memorandum.

Amendment 91-174A

Amendments of Effective Date of Part 125 and Amendments Adopted in Relation to Part 125

Adopted: February 3, 1981 **Effective: February 3, 1981**

(Published in 46 FR 10903, February 5, 1981)

SUMMARY: This document reestablishes the effective date of new Part 125 and related amendments to February 3, 1981. This change in effective date is necessary since the Office of Management and Budget, in accordance with the President's Memorandum dated January 29, 1981, concerning postponement of pending regulations, authorized the FAA to allow Part 125 to become effective without further delay.

FOR FURTHER INFORMATION CONTACT: Edward P. Faberman, Assistant Chief Counsel for Regulations (AGC-200), Regulations and Enforcement Division, Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone: (202) 426-3235.

SUMMARY INFORMATION:

Background

Part 125 was published in the Federal Register on October 9, 1980, (45 FR 67214). That Part, and related amendments to Parts 43, 91, 121, 123, 135, and 145 had an effective date of February 1, 1981. On January 29, 1981, the President issued a memorandum which directed that all agencies, by notice in the Federal Register, postpone for 60 days from January 29, 1981, the effective date of all regulations that had been promulgated in final form and that were scheduled to become effective during that 60 day period. Part 125, and regulations adopted with it, fall within the scope of the President's memorandum.

In accordance with the President's memorandum the effective date of Part 125 was postponed by notice which is published in today's Federal Register (46 FR 10902, 2/5/81). That notice was issued on January 30, 1981, and forwarded to the Federal Register for publication. The Department of Transportation asked the Office of Management and Budget to allow Part 125 to become effective without delay. OMB reviewed that request and advised the Department on February 3, 1981, that Part 125 could become effective in accordance with the President's memorandum. This approval, however, was received by the Department after the Notice postponing the effective date had already been sent to the Government Printing Office by the Office of Federal Register. Therefore, it is necessary to issue this document to establish the effective date for Part 125 as February 3, 1981.

Consistent with this view, I am by this Notice establishing the effective date of Part 125 as February 3, 1981.

Description of Changes

The effective date of Part 125 and of related Amendments 43-21, 91-169, 91-170A, 121-164, 123-9, 135-7, and 145-17 is changed to February 3, 1981. In addition, in order to preserve the application and compliance procedure timing, certain dates specified in any of the related amendments listed in the preceding sentence are similarly revised.

Need for Immediate Adoption

Since the Office of Management and Budget approval was too late to stop publication of the January 30 Notice and since the Notice must be rescinded, I find that notice and public procedure are impracticable and contrary to the public interest and good cause exists for making these amendments effective in less than 30 days.

Change of Dates

Accordingly, 14 CFR Chapter 1 is changed as follows:

1. By changing the effective date of Part 125 and Amendment Nos. 43-21, 91-169, 91-170A, 121-164, 123-9, 135-7, and 145-17 to read February 3, 1981 in each case.

(Secs. 307, 313, 601 through 611, and 1102, Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354, 1421-1431 and 1502); Sec. 6(c) Department of Transportation Act (49 U.S.C. 1655(c)); Title III, Aviation Safety and Noise Abatement Act of 1979 (94 Stat. 50).

Amendment 91-175

Use of FDC Notices to Airmen to Communicate Emergency Regulatory Information and Actions Relating to FAA's Ability to Operate the Air Traffic System

Adopted: March 9, 1981 **Effective: March 13, 1981**

(Published in 46 FR 16666, March 13, 1981)

SUMMARY: This amendment updates and clarifies the air traffic flight rules. It adds a new section to expressly provide that FAA Notices to Airmen (NOTAMs) are an authorized means of advising pilots and aircraft operators of the issuance of certain emergency rules and regulations, which have been adopted in accordance with the Administrative Procedure Act, when such rules and regulations are needed to ensure the FAA's ability to operate the Air Traffic Control System. The existing regulatory provisions authorizing use of NOTAMs to communicate regulatorily significant information are limited to specific situations (such as §§ 91.91, 91.102, and 91.104 of the Federal Aviation Regulations). This amendment clarifies the current process of the FAA by providing that, when emergency conditions relating to the FAA's ability to operate the Air Traffic Control System exist and are not adequately covered by the existing rules and regulations, the FAA may use regulatory ("FDC" coded) NOTAMs to advise pilots and aircraft operators of air traffic rules which have been adopted by the Administrator. FDC NOTAMs provide a timely means for communicating the existence of immediately effective rules from shortly after those rules have been issued until the FAA is able to publish them in the FEDERAL REGISTER. Those emergency rules (including, as appropriate, air traffic requirements, restrictions, or conditions) remain in effect as specified in the rule for the duration of the emergency unless sooner modified or revoked by the Administrator. This amendment does not address the issues raised by FAA Notice No. 80-19, which are being deferred pending further consideration.

FOR FURTHER INFORMATION CONTACT:

B. Keith Potts, Airspace and Air Traffic Rules Division, Air Traffic Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 426-3731.

SUPPLEMENTARY INFORMATION:

REGULATORY HISTORY

On November 13, 1980, the FAA published Notice No. 80-19 proposing to provide in the air traffic flight rules a new section expressly indicating the current FAA process of issuing "regulatory" Notice to Airmen (FDC NOTAMs) to communicate information of regulatory significance to those directly affected (45 FR 75096). While the proposal dealt primarily with internal FAA procedure and management and did not itself propose to establish any new requirement or burden on pilots or aircraft operators, it was published in notice form to receive public comment on the matter in conjunction with the potential use of FDC NOTAMs in certain situations. Under the proposal in Notice No. 80-19, FDC NOTAMs would be used, for example, if the Administrator finds it necessary to activate the National Air Traffic Control Contingency Plan (which was also published in draft form for public comment at 45 FR 75100). The basic objective of the Contingency Plan is to maximize the number of aircraft, people, and cargo that can be safely accommodated with the reduced air traffic control work force. If the Contingency Plan is activated, in whole or part, the FAA will be making every effort to ensure the continued movement of aircraft to the fullest extent practicable consistent with maintaining flight safety in light of available resources to staff the Air Traffic Control System. However, the proposed rule was independent of the draft contingency plan and addressed other situations in which the adoption of immediately effective flight rules or critical flight information must be promptly communicated to pilots and aircraft operators in the interest of flight safety. Contrary to the views of many commenters, it did not propose to expand the authority of the Administrator in fulfilling the statutory responsibility to provide for the safe and efficient use of the navigable airspace and navigation facilities. The intent of the proposal was to update and clarify the current practice and procedure for using FDC NOTAMs as an effective means of immediately communicating legally adopted emergency rules and regulations. FDC NOTAMs are used when the publication of the emergency rules in the FEDERAL REGISTER as a condition precedent to their becoming effective would unreasonably delay the effectivity of a safety requirement. The FDC NOTAMs are not themselves regulations; they merely communicate information, including essential information concerning regulations already adopted by competent FAA authority. However, in response to public comment on the notice and based on further consideration of the proposal, the FAA has concluded that the instant rule should be limited to emergency actions relating to the FAA's ability to operate the Air Traffic Control System safely and efficiently when existing rules are inadequate to respond to emergency conditions.

DISCUSSION OF THE RULE IN LIGHT OF COMMENTS ON NOTICE NO. 80-19

For a better understanding of this rule, the following discussion summarizes a number of concerns expressed in response to Notice No. 80-19. Forty-nine public comments were received. The FAA's preliminary review of those comments identified considerable objection to the perceived nature and effect of the use of NOTAMs to advise the public of emergency rules. Those views and resulting suggestions indicate they may be based upon a misunderstanding of the intent and purpose of the proposal. Thus, they will require further review and evaluation to provide adequate and responsible disposition of them. Since the potential exists for disruption of the FAA's ability to operate the Air Traffic Control System at current levels, however, the FAA must be prepared to respond to conditions which might develop with appropriate administrative and regulatory action. Accordingly, it has been determined necessary to adopt a regulation to ensure that pilots and aircraft operators are provided timely notice of any emergency air traffic rules or regulations that may be issued in response to those conditions.

Almost all commenters felt that the FAA already had adequate authority to act in an emergency thereby making the proposed rule unnecessary. The FAA agrees that it has broad authority to respond to an emergency affecting flight safety; however, the adoption of regulatory provisions indicating how the FAA's authority will be exercised and how it will communicate its emergency actions to affected persons is necessary. This amendment does not create or confer on the FAA any new substantive regulatory authority; instead, this amendment deals with process. That is, this amendment codifies in the air traffic rules a principal means by which the necessary regulatory actions are communicated to affected persons pending publication of the rules involved in the FEDERAL REGISTER. Any emergency procedures and resulting actions taken by the FAA will comply fully with the Federal Aviation Act of 1958, as amended (the "FA Act"), and the Administrative Procedure Act (5 U.S.C. §§ 551-553). The FA Act gives the FAA Administrator the authority to respond to an emergency and to issue appropriate rules. The authority to prescribe air traffic rules and to designate that airspace in which those rules apply is governed by § 307 of the FA Act which also requires compliance with the Administrative Procedure Act in promulgating those rules. Notice No 80-19 did not propose to deviate from the FAA's lawful process but simply proposed to codify in the regulations a means by which the FAA communicates emergency, immediately effective, regulatory requirements that will have already been issued by the Administrator. The NOTAM is not the regulation but its message would provide official notice of the adoption of an immediately effective, emergency rule or regulation and the essential information concerning the content of the regulation involved. Telegrams and telephone calls and other forms of nonregulatory communication may also be used to effect that communication; the proposal in Notice No. 80-19 and this rule concern only the NOTAM system of communication because it is used consistently, though not exclusively, by the FAA in emergencies under the current rules. Thus, any emergency rules so issued would, owing to the need for flexibility and for wide, reliable, and timely distribution, be communicated through the NOTAM system, in the manner currently described in Paragraph 294 of the current Airman's Information Manual (AIM). The instant rule indicates the FAA's use of FDC NOTAMs as discussed in the AIM. Therefore, the FAA is not expanding its authority but is merely clarifying the regulatory status of FDC NOTAMs for the purposes covered by the rule and the distinction between them and other "informational" but nonregulatory NOTAMs carried in the NOTAM system. The rule is similar to the FAA's other expressed provisions for regulatory NOTAMs concerning certain air traffic rules, such as §§ 91.91, 91.102, and 91.104 of the Federal Aviation Regulations.

Any NOTAM issued pursuant to § 91.100 will reference that section and provide information concerning the effect of the emergency regulation. Persons with knowledge of the regulatory requirements would be required to comply as provided by law. Subsequent publication of the regulation in the FEDERAL REGISTER will provide constructive legal notice of the emergency regulation to all persons who may not have received the NOTAM or otherwise have legal notice of the adoption of that regulation.

Most commenters expressed concern about potential abuse of the proposed rule in its future application. They felt that the proposed rule could facilitate circumvention of the normal rulemaking process and its safeguards. As previously indicated, however, the FAA will comply fully with the FA Act and Administrative Procedure Act in taking the regulatory actions under the stated emergency conditions. Of course, notice and public procedure would not precede emergency actions because of the time needed to complete that process and because one or more of the exceptions to the requirement to propose rules for public comment before their adoption do not apply to such emergency rulemaking. With regard to the instant rule, it is the FAA's intent only to ensure the integrity of the operation of the Air Traffic Control System during emergency conditions. Thus, the commenters' concerns do not apply to it. However, to eliminate any misunderstanding concerning the purpose of the rule and its scope, it has been written to expressly limit its application to emergency conditions relating to the FAA's ability to operate the Air Traffic Control System and to clarify the effect of the NOTAM. The broader aspects of the rule proposed in Notice No. 80-19 will be considered in the disposition of that notice. Accordingly, the rule being issued herein as a Federal Aviation Regulation is narrower in scope than that originally proposed in Notice No. 80-19. The instant rule also reflects the recommendation of commenters who advocated disassociation of the proposal in the notice from the National Air Traffic Control Contingency Plan.

Some commenters objected to the proposal on the basis that there is no documented need for such a rule. However, a specific emergency condition need not have previously occurred and be documented before rules are developed relating to how the FAA will respond to such an emergency. A failure to anticipate the potential need for emergency actions would not be responsive to the FAA's responsibility to provide flight safety and operate the Air Traffic Control System. A need for contingency planning and providing the means for implementing those plans when necessary is clear. This amendment responds to that part of the need when the Administrator has cause to issue emergency rules concerning the FAA's ability to operate the Air Traffic Control System and, in accordance with the established practice and the proposed rule, communicates them through the NOTAM system. As with other rules providing for regulatory NOTAMs, the proposal recognizes the potential for unusual conditions or events wherein the existing rules do not provide adequate levels of safety in air transportation. In such events (or emergencies), the regulatory significance of such NOTAMs should be expressly provided in the rules.

Some commenters objected to the proposal in Notice No. 80-19 on the basis that the FAA's NOTAM system, to varying degrees, is either ineffective or inappropriate for conveying information of regulatory significance to affected persons. There may well be room for improving the effectiveness of the NOTAM system in particular situations but deficiencies have not been identified of a magnitude that render the system unusable for its intended purposes. Several commenters offered to work with the FAA to improve the NOTAM system's effectiveness for immediately disseminating regulatory information that requires timely, reliable, and wide distribution. However, as noted, the FAA will be reviewing the methods of communicating information of regulatory significance and how to provide the most expeditious and effective means to ensure that information is provided to those affected by it. If found appropriate, additional rulemaking proceedings will be initiated to ensure a thorough public discussion of the subjects and issues involved.

One commenter agreed with the stated intent of the rule proposed in the notice but offered recommended modifications to §§ 91.100(b) and (c), and on procedural matters. That commenter recommended that proposed § 91.100(b) be revised by deleting reference to the "efficient" use of the navigable airspace because efficiency can be preserved by the normal rulemaking processes and does not warrant emergency action. While improving efficiency does not by itself normally justify emergency action, ignoring efficiency under § 91.100 emergency rules would leave safety as the sole, not just a principal, objective of any rule or regulation issued pursuant to the new section. For example, the measures available to achieve simply the safety objectives could unnecessarily reduce efficiency in the Air Traffic Control System. However, safety, coupled with efficiency, promotes the most prudent and reasonable use of the airspace.

The commuter further recommended that § 91.100(c) be expanded to provide for annotation of NOTAMs issued under this section to reflect their authority. NOTAMs issued pursuant to § 91.100 will be identified as having been issued under that section. Under established practice, each rule, including rules communicated by NOTAM, provides a statement of its legal basis. However, the various means of communicating rules, such as NOTAMs, do not contain the authority statement published in the emergency rule. It is inappropriate to require that procedural matter in the instant § 91.100 rule.

The commenter also recommended publication of a NOTAM's substance as a notice of proposed rulemaking (NPRM) in the FEDERAL REGISTER within five working days after issuance of the NOTAM in order that it would be subjected to the normal rulemaking processes. As previously indicated, an FDC NOTAM is not a rule. It provides notice that a rule has been adopted. The FAA will publish emergency rules, not an NPRM, in the FEDERAL REGISTER, as soon as practicable after their adoption. However, the FAA will not delay the issuance of a regulatory NOTAM under § 91.100 pending that publication. Under established procedures, the preamble to each rule not preceded by notice requests public comment on the rule and, to the extent practicable, the FAA will consider comments received in evaluating whether the rule should be modified. Further, the regulation will be published for public information even if the emergency conditions have ended and the NOTAM is cancelled before the rule is published. The timeliness of its publication must be reasonable as dictated by the prevailing conditions and publishing constraints which cannot be specified for all cases in new § 91.100. Accordingly, it would not be useful to submit to the "normal" rulemaking process an "emergency" rule that has been properly established under the unusual conditions anticipated by the laws and in accordance with those laws.

The commenter suggested the FAA publish a statement of its responsibilities and liabilities for its actions taken under § 91.100, including any losses sustained during the emergency under the rule. Any NOTAM issued under § 91.100 would simply communicate emergency air traffic rules that have been established in accordance with the FA Act and the Administrative Procedures Act. Those rules will have been issued pursuant to those Acts in response to conditions which those Acts contemplated would necessitate foregoing prior notice and public participation and other routine processses suitable for nonemergency action. In such instances, the FAA, nonetheless, remains responsible for its action under established principles of law which the FAA cannot modify.

The commenter also recommended that the FAA take extraordinary measures to acquaint pilots and aircraft operators with the existence and content of § 91.100 NOTAMS. As relates to the instant rule, the FAA will make every reasonable effort to

ensure availability of those FDC NOTAMs issued under the rule. The nature and extent of that effort will be tailored to the existing conditions but will not relieve pilots of their responsibilities prescribed under §§ 91.3, 91.5, and other applicable regulations.

Several commenters took exception to the FAA's determination that the proposal in Notice No. 80-19 was not significant under Executive Order 12044. The FAA continues to stand by that determination even though the Executive Order has since been revoked. It was made in accordance with established procedures and criteria to evaluate regulatory actions. The proposed action in Notice No. 80-19 involves agency procedures for communicating regulatory decisions when an emergency is found to exist. It was not an evaluation of the potential regulatory actions that may be taken in response to those emergency conditions, but an evaluation of the proposed rule which concerns one means by which emergency regulations would be communicated to those affected. Thus, the FAA considered the anticipated impact as so minimal that it did not warrant preparation of a regulatory evaluation under the Executive Order or implementing guidelines.

SYNOPSIS OF THE RULE

This amendment establishes a new § 91.100 under the air traffic rules of Part 91, Subpart B. The rule does not itself create any new requirement for pilots or aircraft operators but establishes the FAA procedure for issuing regulatory (FDC) Notices to Airmen to provide information of regulatory significance relating to its ability to operate the Air Traffic Control System during an emergency. The new section, like §§ 91.91, 91.102, and 91.104, is limited to particular situations. It concerns the possible situations where the Administrator determines that an emergency exists, or will exist, relating to the FAA's ability to operate the Air Traffic Control System (including the possible activation of the National Air Traffic Control Contingency Plan). It addresses those situations in which normal flight operations under existing rules and regulations cannot be conducted at the required levels of safety and efficiency. Whenever that occurs, the Administrator, pursuant to statutory authority, may prescribe appropriate rules and regulations that govern flight operations, the use of navigational facilities, and the designation of that airspace in which the rules and regulations apply. If those regulatory requirements must be given effect before they can be published in the FEDERAL REGISTER, the Administrator, or his designee (the Director of the Air Traffic Service), issues a regulatory (FDC) NOTAM to immediately advise pilots and aircraft operators of the existence and import of those requirements that have been issued in the emergency rule. The NOTAMs themselves are not regulations but are the means for immediately communicating to those affected the regulatory requirements already issued under competent authority. As soon as practicable, the Administrator publishes the emergency rules in the FEDERAL REGISTER to achieve the constructive legal notice provided by that publication. In some cases, however, the emergency may have concluded and the rules may have been rescinded before they can be published; in that case publication will simply provide public notice of the action previously taken. The final paragraph of § 91.100 indicates that, because of the regulatory requirements already adopted by competent authority in a regulation before issuance of the FDC NOTAM, no person may operate an aircraft, or other device subject to the regulation, except in accordance with the authorizations, terms, and conditions prescribed in the regulation communicated by the NOTAM. As previously noted, a further discussion of the FDC NOTAM is contained in paragraph 294 of the Airman's Information Manual (AIM); NOTAMs are also covered by FAA Order 7930.2

POSTPONEMENT/EFFECTIVE DATE

This amendment to FAR Part 91 involves a matter relating to agency procedure and management of its programs and is needed to clarify the means for communicating certain emergency information of regulatory significance, including that needed in the event of the potential activation of the National Air Traffic Control Contingency Plan. Accordingly, I find that good cause exists for making it effective in less than 30 days after publication in the FEDERAL REGISTER and that it is excepted from postponement under the provisions of the President's Memorandum of January 29, 1981 (46 FR 11227; Feb. 6, 1981) for matters related to agency organization, management, personnel and to emergency situations.

ADOPTION OF THE AMENDMENT

Accordingly, Subpart B of Part 91 of the Federal Aviation Regulations (CFR Part 91) is amended effective March 13, 1981, by adding a new § 91.100.

(Secs. 307, 313(a), 601, 603, 902, 1110, and 1202, Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a), 1421, 1442, 1443, 1472, 1510, and 1522); Sec. 6(c), Department of Transportation Act (49 U.S.C. § 1655(c)).

NOTE: The FAA has determined that this document involves an emergency regulation which is not significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Further, in light of the potential disruption of the FAA's ability to operate the Air Traffic Control System, this amendment provides the procedural basis for timely communicating certain regulatory information and actions in the event of activation of the National Air Traffic Control Contingency Plan or the adoption of similar regulatory actions, which require immediate action. Thus, it is an emergency nonmajor regulation under Executive Order 12291 and the President's Memorandum of January 29, 1981. There are no cost impacts associated with this regulation since it is only procedural. Regulations which are distributed in accordance with the procedures in this amendment will be evaluated individually, as appropriate, to determine whether they have cost impacts.

Amendment 91-176

Transport Category Airplanes—Pitot Heat Indication Systems

Adopted: August 7, 1981 **Effective: September 30, 1981**

(Published in 46 FR 43804, August 31, 1981)

SUMMARY: These amendments relieve general aviation operators of transport category airplanes that are operated under Part 91 from the requirement to install pitot heat indication systems to indicate to the flightcrew when the pitot heating system is not operating. The amendments are based on a study which indicates that there have not been any general aviation transport category airplane accidents that could be attributed to a pitot heating system failure. The rule change is also in response to a petition for rulemaking dated January 26, 1979, from the National Business Aircraft Association (NBAA).

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

Notice of Proposed Rulemaking

These amendments are based on Notice of Proposed Rulemaking No. 80-27 (46 FR 76; January 2, 1981). All interested persons were given an opportunity to participate in the making of these amendments, and due consideration was given to all matters presented. These amendments and the reasons for their adoption are the same as those stated in Notice 80-27.

Background of This Rulemaking Proceeding
Amendment 91-148

Section 91.50(a), as adopted by Amendment 91-148 (43 FR 10339; March 13, 1978), provided that after April 12, 1981, with certain exceptions, no person may operate a transport category airplane equipped with a flight instrument pitot heating system unless the airplane is also equipped with an operable pitot heat indication system that complies with § 25.1326. Section 25.1326 requires that the indication provided must incorporate an amber light that is in clear view of a flight crewmember and must be designed to alert the flightcrew if either the pitot heating system is switched "off" or the pitot heating system is switched "on" and any pitot tube heating element is inoperative. All flight operations conducted with transport category airplanes must meet this requirement regardless of the type of operation being conducted.

Petition for Rulemaking by National Business Aircraft Association (NBAA)

On January 26, 1979, the NBAA petitioned the FAA to amend the Federal Aviation Regulations (FAR) to require that only transport category airplanes operated under Part 121, 123, or 135 meet the requirement to have an operable pitot heat indication system.

A summary of the NBAA's petition was published in the *Federal Register* on October 18, 1979 (44 FR 60107), and no comments were received. The FAA included the petition verbatim in Notice 80-27 to provide the public with all statements submitted by the petitioner in support of its petition.

To allow time to consider fully the NBAA petition, in Amendment 91-172 (46 FR 19; January 2, 1981) the FAA suspended the April 12, 1981, compliance date contained in

Amendment 91-148 for operators of transport category airplanes used in general aviation operations under Part 91.

Description of Notice 80-27

Notice 80-27 proposed to exclude general aviation operators of transport category airplanes operating under Part 91 from the operating requirement to install pitot heat indication systems to indicate to the flightcrew when the pitot heating system is not operating. The requirement was to be retained for commercial, air carrier, travel club, and air taxi operators of transport category airplanes. The proposal was in response to a petition from the NBAA which stated, in essence, that the cost of a pitot heat indication system is not justified for general aviation operators.

Notice 80-27 proposed a new section, § 125.122, for the pitot heat indication system requirement in Part 125. This has been changed to § 125.206, which appropriately places the requirement in Subpart F—Instrument and Equipment Requirements.

Discussion of Comments

The FAA received 21 public comments in response to Notice 80-27. A majority of commenters, all of whom operate aircraft under Part 91 only, support the proposal. They agree the proposal would provide financial relief from an unnecessary requirement for general aviation, inasmuch as the cost associated with installing a pitot heat indication system cannot be justified by a proven need for such a warning system. One such commenter states, for example, that in almost 19 years of service experience, his company has never experienced a failure of the pitot heating system on any of the company's aircraft. Similarly, the NBAA contends that existing training in the handling of emergency situations such as instrument failure and recognition of that failure, use of checklists, and cross-checking of instruments provide an equivalent level of safety to that provided by the proposal and that the corporate executive fleet safety record bears this out. The NBAA states that, to the best of its knowledge, there has never been a business aircraft accident attributable to pitot heating system failure.

The FAA, in its study of reports of airplane accidents which have occurred over a period from January 1, 1976, through May 28, 1981, finds no evidence that refutes the NBAA's statement that there is no record of any business or corporate (general aviation) transport category aircraft accident that is attributable to pitot heating system failure. The FAA does not suggest here that general aviation operations are less susceptible than operations conducted under Part 121, 123, 125, or 135 to the problems at which Amendment 91-148 is directed. However, where these operations are concerned, the FAA imposes stricter safety standards than are imposed for general aviation operations under Part 91. Since the operating experience of general aviation operators does not support the need to install a pitot heat indication system, the FAA concludes that the general aviation operator should be relieved of the cost burden associated with installing such a system.

Several commenters oppose the proposal. Some state that the requirement for installing a pitot heat indication system should be retained for Part 91 operations as well as for Part 121, 123, 125, and 135 operations; others state that the requirement should be rescinded for Part 121, 123, 125, and 135 operations as well as for Part 91 operations. Several such commenters state that the requirement for installing a pitot heat indication system should apply to all operations they conduct. They believe that safety standards should be the same for operations conducted under Part 91 as for those conducted under Part 121, 123, 125, or 135, and that the cost of installing a pitot heat indication system would not be prohibitive. An airline pilot's union, in its comment, supports the need for a pitot heat indication system in Part 91 operations because it believes that general aviation transport category airplanes are high-performance aircraft subject to precisely the same hazards as commercial transport category aircraft. This same commenter also implies that the installation costs for such a warning system would not be prohibitive. Another commenter questions the need for installing a pitot heat indication system in Part 135 operations, stating that such a warning system cannot substitute for professionalism in the flightcrew, while another commenter states that in aircraft operated under Part 125 (which may be operated for compensation or hire), the warning system should be an optional item.

The safety standards should not be the same for Part 91 operations as for operations conducted under Part 121, 123, 125, or 135. As stated earlier, where these operations are concerned, the FAA imposes stricter safety standards. In the absence of a record of any general aviation transport category airplane accident attributable to a pitot heating system failure, the cost of compliance with the pitot heat indication system requirement is not justified for general aviation operations conducted under Part 91. However, since air carriers conduct their operations with the highest level of safety and since Part 125 operators may receive compensation for their operations, the FAA imposes stricter standards on such operators. Therefore, the requirement for installing a pitot heat indication system for operations conducted under Part 121, 123, 125, or 135 is warranted. As stated in Amendment 91-148, the addition of a pitot heat indication system, while not guaranteeing against human error, will provide additional assurance that pilots will become aware as early as possible of a potentially dangerous situation.

One commenter suggests that the proposal be revised to allow the use of alternate indicating systems. This was not proposed in Notice 80-27 and cannot be considered as part of this rulemaking proceeding. Similarly, the commenter's point concerning the need for static port heaters is not part of this rulemaking proceeding.

A general aviation manufacturer's association, in its comment, recommends a rule change that would limit the application of § 25.1326, which requires installation of a pitot heat indication system in transport category airplanes, to airplanes used in commercial, air taxi, air travel club, and air carrier operations. This amendment of § 25.1326 was also proposed by the NBAA in its petition. Such a change was not proposed by the FAA in Notice 80-27. Additionally, no justification was offered by the NBAA for deleting the Part 25 requirement which applies to airplanes whose application for type certificate is made after April 11, 1978. Production of these airplanes will not occur until well in the future. Similarly, the manufacturer's association did not address this aspect in suggesting deletion of this Part 25 requirement.

These amendments do not relieve the operators of those transport category airplanes whose basis for certification includes § 25.1326 from the requirement to install a pitot heat indication system. Section 25.1326 applies to airplanes whose application for type certificate is made after April 11, 1978; however, a number of applications for type certificates were made before that date, and the applicants elected or were required under § 21.17 to include the provisions of § 25.1326 in their basis for certification. Some examples of airplanes required to have a pitot heat indication system as part of their basic design approval include the Boeing 757, the Boeing 767, and the Learjet models 54, 55, and 56.

Regulatory Evaluation

The FAA conducted a regulatory evaluation which is included in the regulatory docket for this action. The FAA determined that there is no cost impact on Part 91, 121, 123, 125, or 135 operators of transport category airplanes and only a minimal to negligible cost impact on the Federal Government. Specifically, this rule provides relief to Part 91 operators of certain transport category airplanes manufactured under a type certificate for which application was made before April 12, 1978, by eliminating the requirement to install pitot heat indication systems and imposes no new requirements on such operators. This rule imposes no new requirements on Part 121, 123, 125, or 135 operators. The requirement imposed by § 91.50 to airplanes operated under Parts 121, 123, 125, and 135 remains unchanged although the requirement for installing a pitot heat indication system is now listed separately in Parts 121, 125, and 135. The Federal Government will incur minimal to negligible costs in this revision of Part 91, which is considered to be part of the FAA's ongoing program to revise regulations.

Benefits

Implementing this rule provides benefits in terms of cost savings to Part 91 operators of transport category airplanes. It relieves such operators from the requirement to install pitot heat indication systems in their airplanes. During 1982, which is assumed to be the first effective year of the regulation, FAA estimates equipment, maintenance, installation, and downtime cost savings of at least $7.6 million to $10.9 million for operators of approximately 4,700 Part 91 airplanes. Further, cost savings to Part 91 operators of transport category airplanes of $1.0 million to $1.2 million each year during 1983–1985 are expected. Cost savings will be less during 1983 through 1985 than in 1982 because of the projected limited number of new production Part 91-operated transport category airplanes and because installation of the equipment could be performed during airplane assembly, thereby significantly reducing the costs. The FAA notes again that § 25.1326 requires a pitot heat indication system on those airplanes for which a type certificate application was made after April 11, 1978.

Accordingly, the benefits of this regulation outweigh the costs.

ADOPTION OF THE AMENDMENT

Accordingly, Parts 91, 121, 125, and 135 of the Federal Aviation Regulations (CFR Parts 91, 121, 125, and 135) are amended effective September 30, 1981.

(Secs. 313(a), 601, 602, 604, and 607 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, 1422, 1424, and 1427); and Sec. 6(c), of the Department of Transportation Act (49 U.S.C. 1655(c)).

NOTE: This document relieves a substantial segment of the aviation community of a cost burden and does not impose any additional burden on any person. Therefore, the Federal Aviation Administration has determined that this document involves a regulation which is not a major rule under Executive Order 12291 or a significant regulation under the DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT." It has been determined further that the amendment will not have a significant impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act since it is relieving in nature.

Amendment 91-177

Transport Category Airplanes—Shoulder Harness

Adopted: March 4, 1982 **Effective: March 6, 1982**

(Published in 47 FR 10514, March 11, 1982)

SUMMARY: This amendment changes the compliance date of March 6, 1982, for the combined safety belt and shoulder harness required by § 91.200 to March 6, 1983. This compliance date does not provide operators of affected aircraft sufficient time for the acquisition and installation of required equipment in certain aircraft. Failure to provide such operators additional time within which to comply with the equipment requirements would result in substantial economic penalties for affected operators and would provide a significant amount of inconvenience to the traveling public. Consequently, the relief afforded by this rule is fully consistent with the President's regulatory policies and Executive Order 12291.

Comments must be received on or before April 6, 1982.

ADDRESSES: Send comments on the rule in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-204), Docket No. 22743, 800 Independence Avenue, S.W., Washington, D.C. 20591. Comments may be examined in the Rules Docket weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m.

FOR FURTHER INFORMATION CONTACT: Frank M. Jamison, Jr., Project Development Branch, General Aviation and Commercial Division, Office of Flight Operations, 800 Independence Avenue, S.W., Washington, D.C. 20591, telephone (202) 426-8150.

SUPPLEMENTARY INFORMATION:

Background

On February 4, 1980, the FAA published Airworthiness Review Program Amendment No. 8, Cabin Safety and Flight Attendant Amendments (45 FR 7750), which amended 14 CFR Parts 23, 25, 27, 29, 91, and 121 to update and improve airworthiness standards applicable to cabin safety and flight attendants. Amendment 91-162 added § 91.200, which prescribes a combined safety belt and shoulder harness requirement for transport category airplanes operating under Subpart D of Part 91. Amendment 91-162 requires compliance no later than March 6, 1981; however, § 91.200(b) contains a provision whereby an operator may obtain an extension of the compliance date, but not beyond March 6, 1982, if the operator shows that required hardware is unavailable and submits an acceptable schedule for compliance which indicates that compliance will be achieved at the earliest practicable date.

Under the provisions of § 91.200(b), the Director of Flight Operations issued 373 letters extending the compliance date to March 6, 1982. The letters were in response to requests by operators who were unable to obtain the necessary hardware because of its unavailability.

Need for This Regulatory Change

Based upon an analysis of the number of operators who continue to be unable to obtain the required hardware, the FAA recognizes that a substantial number will be unable to meet the extended compliance date of March 6, 1982. For example, as of February 1, 1982, operators of approximately 110 airplanes informed the FAA that they are unable to obtain the necessary equipment and engineering data to comply with § 91.200(b) by March 6, 1982. Enforcement of the rule, as originally adopted, would cause these operators to suffer a severe and costly penalty because their airplanes would have to be grounded until such time as they could comply with the rule.

FAA inspection and surveillance staff have reviewed the operators' requests. FAA finds that, despite the fact that the large majority of operators have been successful in obtaining and installing appropriate equipment, there remains a smaller number of operators who have been unable to do so. In general, this results from inadequate equipment-manufacturer production rates and resulting equipment supply shortages. In viewing this situation, FAA finds that sufficient time to correct these problems will result if this amendment is adopted, and compliance with the equipment installation requirements of § 91.200 would then be achievable without an undue burden to society.

In view of the foregoing, the FAA has changed the compliance date specified in § 91.200(b) from March 6, 1982, to March 6, 1983. This will allow affected operators additional time to obtain and install the required hardware.

Need for Immediate Adoption

Most of the affected operators are solely dependent on the manufacturers to secure the necessary design changes and hardware. When obtained, the required equipment must be installed in accordance with data that has been approved by the FAA. Airplane manufacturers are unable to provide affected operators with the necessary modifications for each airplane type to bring the entire fleet of airplanes being operated under Subpart D of Part 91 into full compliance before the March 6, 1982, deadline. Not adopting this amendment would impose substantial economic losses and inconveniences on the affected operators whose airplanes would have to be grounded until they are appropriately equipped. Accordingly, I find that an emergency exists as prescribed in Section 8(a)(1) of Executive Order 12291 and that following the procedures of the Executive Order is impracticable. Since the current amendment becomes effective on March 6, 1982, I also find that notice and public procedure are impracticable and contrary to the public interest and that good cause exists for making this amendment effective in less than 30 days.

Adoption of the Amendment

Accordingly, § 91.200(b) of the Federal Aviation Regulations (14 CFR § 91.200(b)) is amended effective March 6, 1982, by changing the "March 6, 1982" compliance date to "March 6, 1983".

Sections 313, 314, and 601 through 610, Federal Aviation Act of 1958 (49 U.S.C. 1354, 1355, and 1421 through 1430); Section 6(c), Department of Transportation Act (49 U.S.C. 1655(c))).

NOTE: The FAA has determined that this regulation is an emergency regulation that is not major under Section 8 of Executive Order 12291. It is impracticable for the agency to follow the procedures of Executive Order 12291 with respect to this rule since the rule must be issued immediately to prevent a significant inconvenience to the traveling public. It has been further determined that this document involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). If this action is subsequently determined to involve a significant regulation, a final regulatory evaluation or analysis, as appropriate, will be prepared and placed in the regulatory docket; otherwise, an evaluation is not required. A copy of it, when filed, may be obtained by contracting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

Amendment 91-178
Miscellaneous Amendments

Adopted: February 26, 1982 **Effective: April 28, 1982**

(Published in 47 FR 13312, March 29, 1982)

SUMMARY: These amendments make a number of minor changes to the Federal Aviation Regulations (FAR). They amend certain Parts to change prerequisites required for flight tests and the experience necessary for an airline transport pilot certificate. They change the validity period for the written test for a flight engineer certificate. In addition, they amend certain sections of the FAR by changing the word aircraft to airplane. Part 45 of the FAR is amended to permit an approved parts manufacturer to refer, on a tag, to readily available information when it would be impractical to mark the required eligibility information on the tag. Part 91 of the FAR is amended to delete the list of purposes for which a special flight authorization for foreign civil aircraft may be issued. Other sections are amended for purposes of clarification or correction.

FOR FURTHER INFORMATION CONTACT: Mr. E. Wendell Owens Regulatory Review Branch (AVS-22), Safety Regulations Staff, Associate Administrator for Aviation Standards, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591, Telephone (202) 755-8714.

SUPPLEMENTARY INFORMATION:

Background

A number of these amendments address problems in the FAR which have been highlighted by numerous requests for exemptions and extensions of compliance dates. In addition, several areas in the FAR require interpretation and clarification. The remaining changes are editorial.

Generally, these amendments address unrelated items that have accumulated over recent years and are appropriate for consolidation in a miscellaneous amendment package.

Discussion of Comments

The following discussions are keyed to like-numbered proposals contained in Notice 80-23 (45 FR 80450; December 4, 1980).

Proposal 1. The proposal to amend § 21.197 to make Part 135 operators eligible for special flight permits with continuing authorizations was disposed of separately in Amendment 21-54 (46 FR 37876; July 23, 1981).

Proposal 2. This proposal would correct an incomplete listing of sections. The correct sections are listed in Appendix A, Section A23.1(a), as §§ 23.321 through 23.459. No comments were received on this proposal. Accordingly, the proposal is adopted without substantive change.

Proposals 3 and 9. Sections 23.305(a) and 25.305(a) contain parallel requirements for structural strength and deformation; however, these include differences in wording and punctuation from the corresponding statements contained in the similar, but correctly stated §§ 27.305(a) and 29.309(a). These proposals would correct §§ 23.305(a) and 25.305(a) by making them consistent with §§ 27.305(a) and 29.305(a). One commenter points out that the word "or" was erroneously inserted at the time CAR 6 and 7 were recodified to Parts 27 and 29 of the FAR. The commenter further states that §§ 23.305 and 25.305 are correctly stated, and that §§ 27.305(a) and 29.305(a) (which have the word "or" inserted) should be revised accordingly.

As originally written, the word "detrimental" was used to quantify the amount of permanent deformation and prohibit acceptance of a loading test which resulted in deforming the tested article to an extent that would degrade its structural charateristics. Insertion of a comma or a conjunction between "detrimental" and "premanent" would change the intended meaning. Inasmuch as the proposed change would only add to the error, the proposals to amend §§ 23.305 and 25.305 are withdrawn.

Proposal 4. This proposal would rearrange paragraphs (a)(1), (a)(2), and (a)(3) of § 23.441 to ensure that the correct tail load distribution is imposed for the flight condition. One commenter points out that the desired correct correlation between load specifying figures in Appendix B and the alternate load requirements of §§ 23.441(a), (b), and (c) could also be accomplished by leaving (a)(1), (a)(2), and (a)(3) in their present order while changing B6, B7, and B8 to B7, B6, and B8. Inasmuch as the interchange of the numbers 6 and 7 occurred initially when the prefix letter B was added in Amendment No. 23-7, August 13, 1969, and because other printings of Part 23 use the order B7, B6, and B8, the FAA disagrees with the commenter. Accordingly, the proposal is adopted without substantive change.

Proposal 5. This proposal would amend § 23.472(f) to delete reference to § 23.725 and insert the reference to § 23.723(a) in its place. This proposal would permit drop tests other than the free drop tests, and would make the requirement consistent with corresponding sections of Parts 25, 27, and 29. No comments were received on this proposal. Accordingly, the proposal is adopted without substantive change.

Proposal 6. No comments were received on the proposal to insert the word "red" before the word "arcs" in § 23.1549(d), for consistency with § 25.1549(d). The proposal is adopted without substantive change.

Proposal 7. This proposal would correct a reference to § 23.201(b) in § 23.1587(a)(1).

The reference to § 23.201(a) or (b) in § 23.1587(a)(1) is incorrect. Reference to § 23.201(a) as proposed in Notice 80-23 is also incorrect. Both references are for paragraphs dealing with control configurations. Section 23. 201(c) deals with a maneuver as intended in § 25.1587(a)(1).

Two commenters suggest that the altitude loss information required by § 23.1587(a)(1) should be required for all airplanes regardless of whether or not they have independent controls. The FAA agrees and has amended § 23.1587(a)(1) to reference § 23.201(c) which applies to all airplanes regardless of their control configuration. The section is amended accordingly.

Proposal 8. This proposal would correct errors contained in the equation constants noted under A23.3, Special Symbols.

No comments were received on the proposal to correct the numbers in the velocity equations which will then correctly reflect the change from miles per hour to knots. This proposal is adopted without substantive change.

Proposal 10. This proposal would amend § 25.807 to make it clear that all transport category aircraft must have ditching emergency exits whether or not ditching certification is requested.

One commenter objects to the application of the ditching (emergency exit) requirement to all Part 25 and Part 29 aircraft. The commenter states that the ditching provisions of §§ 25.807 and 29.807 do not apply unless requested. This commenter also directs attention to Notice 80-23 which solicits economic information on these regulations.

Another commenter expressed full support of the proposal. This proposal is intended to clarify the existing regulation and does not establish a new requirement for transport category airplanes. Accordingly, the proposal is adopted without substantive change.

Proposal 11. No comments were received concerning these proposed minor editorial changes. Accordingly, the proposal is adopted without substantive change.

Proposal 12. This proposal would amend § 29.807 to make it clear that all transport category aircraft must have ditching emergency exits whether or not ditching certification is requested.

A commenter states that helicopters not certified for ditching will probably capsize immediately when rotor lift is lost because of their high center of gravity and lack of lateral stabilizing appendages such as wings. This commenter also claims that, because of the additional factor that compartments are not usually water-tight, it is impossible to determine a waterline. The commenter recommends the proposal be cancelled.

Two commenters strongly object to this proposal on the basis that the extension of the transport airplane condition to a helicopter is illogical because of the unique characteristics of helicopters. The commenters point out that the FAA previously considered this question and agreed that the proposed requirement was inappropriate.

Since the time this question was previously considered, there has been no new evidence which would justify a change in rationale, nor has there been any new evidence pointing to a need for added rotorcraft ditching exit provisions. Accordingly, this proposal is withdrawn.

Proposal 13. This proposal would have made Part 43 internally consistent by amending § 43.4 to include Canadian persons authorized under § 43.17. Operations Review Program Notice No. 12 proposes changes to § 43.3. Accordingly, this proposal is withdrawn and will be acted upon as part of that review. Comments received in response to this proposal will be given full consideration in that action.

Proposal 14. Two comments were received in response to this proposal to revise the marking requirements of § 45.15 so that when it is impractical to mark the required eligibility information on the tag attached to a part or container, the tag may refer to a specific and readily available reference manual or catalog which contains the required information.

One comment was submitted by the Industry Association that petitioned for this rule change. It found the wording of this proposal to be reasonable.

Another commenter believed that the original concept of Parts Manufacturer Approvals (PMA) was primarily based on the production of parts such as spark plugs, pistons, piston pins, etc., to be used as duplicate parts without a specific part number. These parts are, in fact, required to have a specific part number. Further, the PMA manufacturer is required to mark the parts (or tags) with parts replacement eligibility. It was not proposed to remove the requirement for this information from § 45.15; it was proposed to provide that, in those cases where it would not be practical to mark the required eligibility information on the tag, the tag may contain a reference to a readily available manual or catalog containing the required eligibility information.

Section 45.15 is adopted without substantive change.

Proposal 15. Section 61.39(b) has required that an applicant for an airline transport pilot certificate or an additional rating who does not wish to retake the required written examination must have been continuously employed since passing the written examination and be participating in a pilot training program. For the exception from the 24-month requirement to apply, a person had to have been employed by a carrier immediately (within 24 hours) after taking the written examination; a strike or furlough constituted a break in continuous employment, thus invalidating the exception. The FAA has determined that this rule is too restrictive, since it is possible for a pilot to be on vacation for a longer period of time than some strikes or furloughs last, and it would be unfair to apply the exception provision to the vacationing pilot but not the striking or furloughed pilot. Accordingly, Notice 80-23 proposed to amend § 61.39 to provide that the applicant need only be employed within the period ending 24 calendar months after the month in which the applicant passed the written examination and at the time of the flight test. Notice 80-23 also proposed to eliminate the continuous employment requirement and substitute a requirement to complete initial training and when appropriate, transition or upgrade training, and to meet the recurrent training requirements. Requiring an individual's training to be current is a better means of ensuring retention of the knowledge tested by the written test than requiring continuous employment.

One commenter responded in support of the proposal. The proposal is adopted as proposed.

Proposal 16. Section 61.155(d) has provided that a commercial pilot may credit toward the total flight time required for an airline transport pilot certificate any second-in-command time "in operations under Part 121." However, § 61.51(c)(3) provides that for meeting the requirements for a certificate or rating, a pilot may log as second-in-command time all flight time during which that pilot acts as second in command of an aircraft on which more than one pilot is required under the type certification of the aircraft or the regulations under which the flight is conducted. The intent of § 61.51(c)(3), when it was adopted, was that this rule should apply to the experience requirements for each kind of pilot certificate. However, at that time no change was made in § 61.155(d). Notice 80-23 proposed to eliminate the phrase "in operations under Part 121," so that all second-in-command time which meets the requirements of § 61.51(c)(3) may be credited under § 61.155. No comments were received on this proposal.

The proposal is adopted and all second-in-command time which meets the requirements of § 61.51(c)(3) may be credited under § 61.155(d).

Proposal 17. Section 63.35(d) has required continuous participation in a maintenance, flight engineer, or pilot training program of a Part 121 certificate holder for an applicant for a flight engineer certificate to be exempted from the 24-month validity period for the written examination. Similar to § 61.39, this section has been interpreted to mean that any break in employment, such as a strike or furlough, constitutes an interruption of continuous participation in a training program and prevents the exception from applying. The FAA has reevaluated this requirement and has determined that continuous participation in a training program is not essential. Currency in a certificate holder's training program for a flight crewmember or recency of experience for a mechanic employed by a certificate holder ensures knowledge retention better than continuous participation in a training program.

Notice 80-23 proposed to amend § 63.35(d) to apply the exception provision to a flight crewmember or mechanic who is employed by a certificate holder within the period ending 24 calendar months after the month in which the applicant passed the written examination, and whose training is current or meets the recent experience requirements for a mechanic under § 65.83. It also proposed to expand the rule to include employment by a commuter air carrier.

No comments were received on the proposal. It is adopted without substantive change.

Proposal 18. Notice 80-23 proposed to amend § 65.101 to allow formal training to be substituted for the practical experience now required for repairman certificate eligibility. One commenter agreed with the substance of the proposal, with the exception that completed formal training should have the prior approval of the Administrator instead of being reviewed for acceptability after completion.

Because of the diversity and uniqueness of training associated with repairman ratings, it would be impractical to establish national uniform training standards necessary for prior approval of training programs. Conversely, FAA certificated air agencies, aviation manufacturers, and air carriers are best able to establish that formal training which will qualify the repairmen they employ to perform or supervise the maintenance of aircraft or components at its facilities. The FAA can then review the training and determine if it is acceptable. This amendment will provide a logical alternative to the 18 months of practical experience formerly required for repairmen eligibility and still provide an equivalent level of competency. Accordingly, this proposal is adopted without substantive change.

Proposal 19. It was proposed to amend § 65.127(b) to provide that a parachute rigger need only have available suitable housing that is adequately heated, lighted, and ventilated for drying and airing parachutes. This section has required, in part, a compartment for hanging a parachute vertically for drying and airing. Since parachutes are now made of synthetic fabrics, a vertical or horizontal means for drying and airing parachutes is also acceptable. However, the housing must still be adequately heated, lighted, and ventilated.

No comments were received on this proposal. Section 65.127(b) is being revised as proposed.

Proposal 20. Notice 80-23 proposed to delete the list of purposes for which a special flight authorization could be issued. The intent was to eliminate the need for an applicant to petition for an exemption from previous § 91.28 when the purpose was other than that specified under the rule. This was intended to relieve the burden on both the FAA and the public imposed by exemption procedures.

Review of the comments received revealed that even though all commenters supported the proposal, they apparently misconstrued intent, in believing that CAB authority, in addition to the FAA special flight authorization, would be necessary for all purposes, including those which formerly did not require CAB authority under the previous rule. The CAB also submitted comments consistent with most commenters indicating that the proposed rule was subject to misinterpretation. The CAB provided revised language for proposed § 91.28(c) to preclude any misunderstanding as to when CAB authority would be necessary.

In this regard the FAA agrees with the commenters and the CAB that the proposal was not clear relative to when CAB authority would be necessary. Accordingly, the FAA has amended the language of proposed § 91.28 to clarify when CAB authority would be necessary.

One commenter noted that, in the case of special flight authorizations for air shows (§ 91.28(b)(6)), the application procedure contained in proposed § 91.28(a) would no longer provide for applications to be made to the Regional Director of the FAA region in which the air show will take place. The commenter stated that the existing application procedure should be retained since it is economical and effective. The FAA agrees with this comment and has amended § 91.28(a) to reinstate this application procedure.

One commenter stated that it was not clear whether the Regional Director would have authority to issue special flight authorizations for extended periods of time; i.e., once justification had been established for an initial special flight authorization, there would be no benefit in repeating the procedure for each subsequent trip, as in the case of a Canadian amateur-built aircraft to participate at United States air shows. This comment was not considered since it was determined to be outside the scope of Notice 80-23.

Accordingly, this section has been amended consistent with public comments in the interest of clarification and adopted without substantive change.

Proposal 21. This proposal would have required all helicopters operating under IFR to use altimeters which have been tested for the altitudes at which operations are conducted. Operations Review Program Notice No. 12 proposes a number of changes to § 91.170. Accordingly, this proposal is withdrawn and will be acted upon as part of that review. Comments received in response to this proposal will be given full consideration in that action.

Proposal 22. This proposal would delete references to Part 103 in § 121.135(b)(23) and insert appropriate references to Title 49 of the CFR. Since this change was previously accomplished in Operations Review Amendment No. 9 (45 FR 46736), this proposal is withdrawn.

Proposal 23. This proposal would require the interphone system to be accessible for use at enough flight attendant stations so that all floor-level emergency exist in each passenger compartment are observable from one or more of those stations so equipped. Section 121.319(a) requires, in part, that airplanes with a seating capacity of more than 19 passengers must be equipped with a crewmember interphone system. Section 121.319(b)(5)(i) requires that for large turbojet-powered airplanes, the interphone system must be accessible for use at enough flight attendant stations so that all floor-level emergency exits in each passenger compartment are observable from one or more of those stations. From a security and operational viewpoint, if the floor-level exit is located within a galley, and the entryway to the galley is observable, this will satisfy the operational/security requirements and, therefore, it would be unnecessary to view the exit itself. No comments were received on this proposal. Accordingly, it is adopted without substantive change.

Proposals 24, 25, 27, and 28. Sections 121.385, 121.389, 121.695, and 121.697 contained inconsistencies in the use of the words "aircraft" and "airplanes." The proposals would replace the word "aircraft" with the word "airplane" where it appears in §§ 121.385(a), 121.389(a)(2), 121.695(a), and 121.697(a) and (d). These editorial corrections would make the language consistent with the applicable word definitions. No comments were received on these proposals. Accordingly, they are adopted without substantive change.

Proposal 26. This proposal would have amended § 121.585 to require a certificate holder to notify a passenger declaring a firearm in checked baggage of the definition of a "loaded" firearm. It further would have required a certificate holder to determine that ammunition is carried in accordance with the Hazardous Materials Regulations in Title 49 Parts 171, 172, and 173 of the CFR.

Inasmuch as there is no evidence indicating a need for this added provision, and its implementation would impose an additional unnecessary cost on certificate holders, this proposal is withdrawn.

Proposal 29. This proposal would relieve an unnecessary burden on certificate holders that do not have clerical staffs working holidays and weekends by revising § 121.703 to change the reporting time to 9:00 a.m. the second workday following the date of the reportable event for reports covering holidays and weekends. No comments were received on this proposal. Accordingly, this proposal is adopted without substantive change.

Proposal 30. Part 129 prescribes rules governing the operation within the United States of aircraft of foreign air carriers holding a permit issued by the Civil Aeronautics Board (CAB) under Section 402 of the Federal Aviation Act of 1958. Currently, the CAB issues exemptions to permit temporary operations by foreign air carriers without a Section 402 permit provided the foreign air carrier is in compliance with Part 129. This proposal would amend § 129.1 of the FAR to make Part 129 applicable to foreign air carriers who hold either a Section 402 permit or other appropriate economic authority, or an exemption issued by the CAB which requires compliance with that Part. No comments were received on this proposal.

The phrase "conditioned upon the foreign air carrier compling with the requirements of the Part" is ambiguous since Part 129 applies regardless of CAB conditions shown on the economic authority to operate in the United States. Accordingly, this section has been amended and adopted without substantive change.

Proposals 31 and 32. These proposals were disposed of in Amendments 135-13 (46 FR 28301; May 26, 1981) and 135-15 (46 FR 30968; June 11, 1981).

Editorial Corrections

Amendments to §§ 107.13(a) and 121.575 were not proposed in Notice 80-23. They are editorial corrections which are necessary and resulted from new Part 108, Airplane Operator Security (46 FR 3782; February 15, 1981).

These amendments correct §§ 107.13 and 121.575 by inserting the appropriate reference to the new Part. No substantive change is made as a result of the corrections.

ADOPTION OF THE AMENDMENT

Accordingly, Parts 23, 25, 45, 61, 63, 65, 91, 107, 121, and 129 of the Federal Aviation Regulations are amended effective April 28, 1982.

(Secs. 313(a), 601 through 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421 through 1425); sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)); and 14 CFR 11.49)

NOTE: The FAA has determined that these amendments reduce the regulatory burden on the flying public by relaxing certain regulations that govern prerequisites for flight tests, approved parts reference for manufacturers, and special flight authorization for foreign civil aircraft by prescribing only the minimum regulations deemed necessary for safety. The FAA's evaluation of the changes to Parts 23, 25, 45, 61, 63, 65, 91, 107, 121, and 129 indicates that the benefits will exceed the costs, primarily because the complexity and volume of regulatory material have been reduced. Further, proposals contained in the notice which have potential for placing a regulatory burden on the public have been removed. Therefore: (1) it has been determined that this is not a major regulation under Executive Order 12291; and (2) I certify that, under the criteria of the Regulatory Flexibility Act, these amendments will not have a significant economic impact on a substanstical number of small entities. In addition, the FAA has determined that these amendments are not significant under the Department of Transportation Regulatory Policies Procedures (44 FR 11034; February 26, 1979). The impact of this rulemaking is so minimal it does not require a final regulatory evaluation since most of the amendments are merely editorial corrections and clarifications and some have minimal relaxatory and beneficial economic impact.

Amendment 91-179

One-Engine Inoperative Ferry Flight Authorization

Adopted: May 10, 1982 **Effective: July 12, 1982**

(Published in 47 FR 25116, June 10, 1982)

SUMMARY: This amendment changes the regulations to allow certificate holders under Part 125 to conduct ferry flights with one engine inoperative without a special flight authorization. This change is necessary to preclude discontinuing this authorization for commercial operators, when Part 125 becomes applicable to them on January 1, 1983, since Part 125 does not contain such authorization. This amendment responds to requests from commercial operators who have become certificated under Part 125 and provides relief for these operators. This amendment is consistent with Executive Order 12291 and the Regulatory Flexibility Act.

FOR FURTHER INFORMATION CONTACT: Mr. C. W. Schaffer, General Aviation and Commercial Branch (AWS-340), Aircraft Maintenance Division, Office of Airworthiness, Federal Aviation Administration, 800 Independence Ave. SW., Washington, D.C. 20591; Telephone: (202) 426-8205.

SUPPLEMENTARY INFORMATION:

This amendment is based on Notice of Proposed Rulemaking No. 81-17 published in the *Federal Register* January 7, 1982 (47 FR 818). All interested persons were given an opportunity to participate in making the amendment and due consideration was given to all matters presented. The amendment and reasons for adoption are the same as contained in Notice No. 81-17.

Description of Notice

Notice 81-17 proposed to allow certificate holders under Part 125 to conduct ferry flights with one engine inoperative without a special flight authorization. This change was deemed necessary to preclude discontinuing this authorization for commercial operators, when Part 125 becomes applicable to them on January 1, 1983, since Part 125 does not contain such an authority. The rule was proposed to be changed by amending § 91.45(a) by deleting the phrase "an air carrier or commercial operator of large aircraft" and substituting the phrase "the holder of an air carrier operating certificate, an operating certificate issued under Part 125 or until January 1, 1983, an operating certificate issued under Part 121." This would enable commercial operators, now operating under Part 121, who later operate under Part 125 to receive the same authorization for a one-engine inoperative ferry flight as they now receive under Part 121.

Background

Part 125 became effective February 3, 1981. Section 125.1(d) provides that an operator who, on the effective date of Part 125, holds a certificate as a commercial operator under Part 121 may continue under those rules until the expiration of the certificate, but no later than January 1, 1983. Thus, a commercial operator operating aircraft to which Part 125 applies must, by that date, hold an air carrier operating certificate, hold an operating certificate under Part 125, or cease to operate for compensation or hire. Some operators have elected to become certificated as air carriers under Part 121, but the majority have or will become operating certificate holders under Part 125.

Commercial operators under Part 121 are authorized, by § 91.45, to conduct ferry flights of four-engine airplanes or turbine-engine-powered airplanes equipped with three engines, with one engine inoperative. Section 91.45 does not make such a provision for operating certificate holders under Part 125.

Therefore, at the present time, certificate holders operating under Part 125 are required to make application for, and be issued, a special flight authorization (ferry permit) when they desire to conduct one-engine inoperative ferry flights. When the need for a ferry permit occurs in a remote area or during other than normal business hours, the application and issuance process can result in costly delays in returning the aircraft to productive service. Further, an unnecessry administrative burden is placed on the operator and the Federal Aviation Administration.

Section 125.1(d) imposes the same limitations on certificate holders under Part 123 since it also brings them under Part 125 on January 1, 1983. These persons and others who become certificated under Part 125 would be subject to the same application and issuance procedure and limitations imposed on commercial operators. However, it should be noted that persons issued deviation authority under § 125.3 to operate under Subpart D of Part 91 are not authorized to use § 91.45 as amended since only those persons who receive an operating certificate issued under Part 125 will be so authorized.

Discussion of Comments

Four comments were received. Three of the four commenters support the proposal and suggest it be broadened beyond what was proposed. These suggestions are appreciated by the FAA but because they are beyond the scope of the proposals in the notice they cannot be acted upon without further notice and public consideration.

One commenter opposes the proposal on the basis that FAA has not made a study to determine the risk level of a second engine failure, and that Part 25 engine-out climb gradients were established to ensure not only the safety of crewmembers and passengers but also persons on the ground. This commenter also points out that Part 125 does not require a certificate holder to have a well developed maintenance organization as required by Part 121.

The FAA has considered the points raised by this commenter and concludes they are without merit. Section 91.45 limits occupancy of the airplane to required flight crewmembers, prohibits takeoff over thickly populated areas, requires flight tests to confirm one-engine inoperative operational data contained in the Airplane Flight Manual, and requires the airplane to be safely controllable with two engines inoperative in the event of a second engine failure while operating one engine inoperative. These requirements provide adequate protection for required crewmembers and persons on the ground.

As far as the comment regarding maintenance organizations is concerned, the FAA finds that while Part 125 does not require specific maintenance and management organizations or position titles as does Part 121, it does, in § 125.25, require "enough management personnel, including at least a director of operations, to assure that its operations are conducted in accordance with the requirements of Part 125." Further, although Part 125 certificate holders are not authorized to perform maintenance, § 125.245 requires them to ensure that persons with whom arrangements are made for maintenance have an organization adequate to perform that maintenance. Therefore, the FAA concludes that an adequate level of safety is provided by § 91.45 for one-engine inoperative ferry flights of Part 125 airplanes.

Impact Assessment

This regulatory action is relieving in nature. No formal cost-benefit analysis was completed with respect to the change. However, through a preliminary assessment of costs and economic impact, the FAA has determined that there are no costs associated with this change, and that by eliminating the delays caused by operators having to secure a special flight authorization (ferry permit) when they desire to conduct one-engine inoperative ferry flights, there will be a positive economic impact.

Adoption of Amendment

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended effective July 12, 1982.

(Secs. 313, 314, and 601 through 610, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354, 1355, and 1421 through 1430); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)))

NOTE: This amendment will eliminate delays caused by operators having to secure a special flight authorization (ferry permit) when they desire to conduct one-engine inoperative ferry flights by eliminating the need for such authorizations. This will reduce costs and paperwork to affected Part 125 operators. The expected impact of this regulatory action is minimal, involves no costs, will have only positive economic impact by eliminating the need for special flight authorizations, and does not warrant preparation of a regulatory evaluation. Therefore, the FAA has determined that this action is not a major rule under Executive Order 12291 or a significant regulation under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, for the reasons discussed above I certify that, under the criteria of the Regulatory Flexibility Act, this regulatory action will not have a significant economic impact on a substantial number of small entities.

Amendment 91-180

Flightcrew Requirements for Part 91, Subpart D, Operations of Aircraft Certificated Under SFAR 41

Adopted: June 11, 1982 **Effective: July 15, 1982**

(Published in 47 FR 30846, July 15, 1982)

SUMMARY: This amendment permits operation of large airplanes certificated under Special Federal Aviation Regulation 41 with one pilot instead of two if the airplane is found safe for operation with one pilot, when operating under Subpart D of Part 91 of the Federal Aviation Regulations. This amendment relieves operators of an economic burden that does not have a commensurate safety benefit. Consequently, the relief afforded by this rule is fully consistent with the President's regulatory policies and Executive Order 12291. The rule change is in response to a petition for rulemaking submitted by the General Aviation Manufacturers Association (GAMA).

FOR FURTHER INFORMATION CONTACT:

Frank M. Jamison, Jr., Project Development Branch, General Aviation and Commercial Division, Office of Flight Operations, 800 Independence Avenue, SW., Washington, DC 20591; telephone: (202) 426-8150.

SUPPLEMENTARY INFORMATION:

Notice of Proposed Rulemaking

This amendment is based on Notice of Proposed Rulemaking No. 82-2 (47 FR 4092; January 28, 1982). All interested persons were given an opportunity to participate in the making of this amendment, and due consideration was given to all matters presented. This amendment and the reason for its adoption are the same as those stated in Notice 82-2.

Background of This Rulemaking Proceeding

Section 91.213(a) (1), as adopted by Amendment 91-101 (37 FR 14758; July 25, 1972), provides that no person may operate a large airplane without a pilot who is designated as second in command of that airplane.

Current airworthiness standards exist for two basic designations of airplanes: Part 23 for small (12,500 pounds or less) airplanes having nine or fewer passenger seats and Part 25 for transport category airplanes. Commuter airlines and air taxi operations in the United States, which have grown substantially in recent years, have demonstrated a need for airplanes which are not fully in the transport category but exceed the size limitations of Part 23. Certain small multiengine airplanes weighing under 12,500 pounds maximum certificated takeoff weight (MCTW) are so designed that they can be readily increased in size and maximum takeoff weight. Thus they can fill the void between Part 23 and Part 25 airplanes.

Special Federal Aviation Regulation No. 41 (SFAR 41) was adopted on September 7, 1979, to allow certain Part 23 airplanes to be adapted to fill the void without requiring them to meet the standards of transport category airplanes. SFAR 41 allows the certification and operation, with appropriate restrictions and limitations, of small, propeller-driven multiengine airplanes at a maximum takeoff weight exceeding 12,500 pounds. The airplanes may also be configured with more than 10 passenger seats. It requires that the basic type of each airplane must have been originally type certificated in accordance with Part 23 prior to October 17, 1979.

The rules applicable to air taxi and commercial operators (Part 135), including commuter airlines, were amended to allow the operation of airplanes certificated under SFAR 41. Experience has indicated that since the adoption of SFAR 41, operations of these airplanes are routinely conducted under Part 91 in addition to Part 135.

Section 1(c) of SFAR 41 requires, in pertinent part, that an airplane certificated under paragraph (b) of Section 1 is considered to be a small airplane for the purpose of Parts 21, 23, 36, 121, 135, and 139 and a large airplane for the purposes of Parts 61 and 91. The combined effect of SFAR 41 and § 91.213(a) (1) prohibited the operation under Part 91 of SFAR 41 airplanes with only one pilot when airplanes of the same basic design and configuration which have been certificated under Part 23 can be operated with one pilot. This has caused an apparent financial burden on Part 91 operators of airplanes certificated under SFAR 41.

Petition for Rulemaking by the General Aviation Manufacturers Association

On May 22, 1981, GAMA petitioned the FAA to amend the Federal Aviation Regulations to allow operation of certain airplanes certificated under SFAR 41 with one pilot. The petition states that this will reduce the burden on the public by allowing airplanes to operate with one pilot during certain flights if those airplanes have been found safe for operation with one pilot. This would include operations such as maintenance flight testing, relocation of airplanes, executive use, and demonstration flights, all of which may be conducted under Part 91. Two pilots would continue to be required for air taxi operations conducted under Part 135 when airplanes with 10 or more passenger seats are used. The petitioner points out that the requirement for two pilots to be used for all operations imposes an economic burden without a commensurate safety benefit.

On January 6, 1982, the FAA issued a Notice of Proposed Rulemaking (Notice 82-2) in response to GAMA's petition. The Notice proposed to amend § 91.213(a) (1) to allow an airplane certificated under SFAR 41 to be operated without a second-in-command pilot if the airplane is certificated for operation with one pilot. The Notice was published in the *Federal Register* on January 28, 1982. The closing date for comments was March 29, 1982.

Discussion of Comments

The FAA received 15 public comments in response to Notice 82-2; 11 commenters fully support the proposal; 2 commenters support the proposal with reservations; and 2 commenters oppose the proposal.

Eight commenters state, in essence, that the rule change will relieve operators of an undue economic burden in the conduct of nonrevenue operations of the aircraft in question without compromising safety.

Comments from two prominent aviation-oriented organizations support the proposal but with reservations. One of these organizations recommends that an additional paragraph be added to make it clear that the operating rules in effect for a particular flight shall dictate the minimum required crew complement for that flight. This commenter states that such a caveat is necessary for avoiding any misconception that may develop as the result of a misinterpretation of the intent of § 91.213(a) (1), by alerting the operator that single-pilot operation is not authorized on the basis of type certificate data alone. The FAA appreciates the concern that motivated this recommendation; it would be inappropriate, however, to incorporate the caveat in § 91.213 as it would be redundant. This is because it is only when an aircraft is being operated under Subpart D of Part 91 that the rules contained therein apply. The applicability rules in § 91.181(a) explicitly state that the operating rules of Subpart D do not apply to airplanes when they are required to be operated under Part 121, 123, 125, 129, 135, or 137 of the Federal Aviation Regulations.

An airline pilot's union supports the proposed rule but with certain restrictions, that is, limit single-pilot operations to visual flight rules (VFR) conditions and to only when no passengers are being carried. This commenter contends that "carriage of additional persons, unless they were operationally required, could easily constitute an unnecessary and unwarranted distraction to the pilot and must not be allowed." Adoption of either of these recommendations would impose limitations, the stringency of which could not be justified. The FAA considers the pilot workload in SFAR 41 airplanes affected by this amendment to be more demanding than that in many makes and models of airplanes certificated under Part 23 to which Subpart D of Part 91 does not apply.

Two commenters, the aviation coordinator of an institution of higher learning and a private individual, oppose the proposed rule change. The former commenter argues that in the interest of safety, no large airplanes (having an MCTW of more than 12,500 pounds) should be excepted from the requirements for a second-in-command pilot. The FAA does not agree that all airplanes with an MCTW of more than 12,500 pounds are necessarily more demanding than airplanes weighing less. The latter commenter gives reasons why he considers two specific makes and models of airplanes certificated under SFAR 41 should require two pilots at all times. The commenter provides no documentation to support this position. This commenter also states that he believes one of the models carries 15 passengers which "appears to me to be too many people for a one-pilot operation." This comment, in effect, implies objection to operations of certain airplanes that were certificated under Part 23 that are capable of carrying 15 passengers with only one pilot. The record indicates, however, that such aircraft are being operated safely with one pilot.

Description of the Amendment

As proposed in Notice 82-2, the FAA is amending Part 91 to allow certain SFAR 41 airplanes to be operated under Part 91 with one pilot. This is accomplished by amending § 91.213(a) (1) to exclude SFAR 41 airplanes from the requirement that all large airplanes must operate with a second in command. That section currently requires two pilots for all large airplanes, that is, those airplanes weighing over 12,500 pounds MCTW. Maintenance and pilot certification requirements of Part 91 operations will remain unchanged.

Under the amendment, the determination that single-pilot operation can be safely permitted will have to be made a part of the certification basis for the airplane if not already established. The approval, if granted, will appear in the type certificate data for the appropriate make and model airplane. However, the operating rules in effect for a particular flight will still dictate the minimum required crew complement for that flight.

This amendment provides an acceptable level of safety for affected operations while imposing the least amount of regulatory control consistent with maintaining flight safety. The amendment will reduce the burden on aircraft operators by eliminating the cost of a second pilot without compromising safety. Since the benefits outweigh the costs, this amendment is consistent with Executive Order 12291, signed by the President on February 17, 1981. As a result, the FAA is amending § 91.213(a) (1) to allow SFAR 41 airplanes to be operated without a pilot who is designated as second in command.

This amendment responds to an industry petition for relief from a current regulation. No formal benefit-cost analysis was completed with respect to the amendment. A regulatory evaluation was conducted for this action to assess the cost and economic impact. The FAA has determined that there are no apparent direct or indirect (nonindustry) costs associated with granting the petition. The FAA agrees with GAMA's statements as to benefits. Therefore, it is apparent that benefits outweigh any costs associated with changing the present regulation.

Adoption of the Amendment

Accordingly, § 91.213(a) (1) of the Federal Aviation Regulations (14 CFR § 91.213(a) (1)) is amended effective July 15, 1982.

(Secs. 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, 1423, and 1424), and Sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c))).

NOTE: The FAA has determined that this amendment relaxes requirements and allows more flexibility to affected operators since it permits operation of certain SFAR 41 aircraft with one pilot instead of two if the airplane is found safe for operation with one pilot. For these operations, operators have a cost saving and no increased economic burden. There are no apparent direct or indirect (nonindustry) costs associated with the amendment. Therefore, it has been determined that this is not a major regulation under Executive Order 12291 or significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11043; February 26, 1979). This amendment allows operators of SFAR 41 aircraft, some of whom are small entities, to minimally reduce costs by operating aircraft under certain conditions with one pilot instead of two. Therefore, I certify that under the criteria of the Regulatory Flexibility Act, the amendment will not have a significant economic impact on a substantial number of small entities. A copy of the regulatory evaluation prepared for this amendment may be obtained by contacting the person identified under the caption FOR FURTHER INFORMATION CONTACT.

Amendment 91-181

Operations Review Program: Amendment No. 12: Aircraft Maintenance

Adopted: July 29, 1982 **Effective: October 15, 1982**

(Published in 47 FR 41076, September 16, 1982)

SUMMARY: These amendments to Parts 43 and 91 make them compatible with other rules, consolidate the inspection requirements to make them easier to use and more understandable, specify the conditions under which the terms "rebuilt" and "overhaul" may be used in maintenance records, and allow Canadian Nationals to perform certain aircraft inspections on U.S.-registered aircraft. The amendments are part of the Operations Review Program and are based on a compilation of proposals made at the Operations Review Conference.

FOR FURTHER INFORMATION CONTACT: Charles W. Schaffer, Jr., General Aviation and Commercial Branch, AWS-344, Aircraft Maintenance Division, Office of Airworthiness, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; Telephone: (202) 426-8203.

SUPPLEMENTARY INFORMATION:

History

This amendment is issued as part of the Operations Review Program. The following amendments have previously been issued as part of this program:

	Title and Federal Register (FR) Citation
Amendment No. 1:	Clarifying and Editorial Changes (41 FR 47227; October 28, 1976).
Amendment No. 2:	Rotorcraft External-Load Operations (42 FR 24196; May 12, 1977 and 42 FR 32531; June 27, 1977).
Amendment No. 2A:	Special Federal Aviation Regulation No. 36, Development of Major Repair Data (43 FR 3084; January 23, 1978).
Amendment No. 3:	Airspace, Air Traffic, and General Operating Rules (44 FR 15654; March 15, 1979).
Amendment No. 4:	Miscellaneous Amendments (43 FR 22636; May 25, 1978).
Amendment No. 5:	Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft (43 FR 22643; May 25, 1978, 43 FR 28403; June 29, 1978, and 44 FR 25201; April 30, 1979).
Amendment No. 6:	General Operating and Flight Rules and Related Airworthiness Standards and Crewmember Training (43 FR 46230; October 5, 1978).
Amendment No. 8:	Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft; Operation of Scheduled Air Carriers with Helicopters; and, Airworthiness Standards for Transport Category Airplanes (45 FR 41586; June 19, 1980).
Amendment No. 9:	Operations Review Program: Amendment No. 9 (45 FR 46736; July 10, 1980).
Amendment No. 10:	Airworthiness, Equipment, and Operating Rules (44 FR 61323; October 25, 1979).
Amendment No. 11:	Operations Review Program: Amendment No. 11 (47 FR 33384; August 2, 1982).

These amendments are based on Notice of Proposed Rulemaking 80-22 published in the *Federal Register* November 20, 1980 (45 FR 76894). Interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all comments presented. A number of changes of an editorial and clarifying nature have been made to the proposed rules based on relevant comments received and upon further consideration by the FAA. Except for these minor changes, the amendments and the reasons for their adoption are the same as those contained in Notice 80-22. Some comments received made recommendations for changes which are beyond the scope of the Notice and cannot be considered without further notice and public consideration.

Discussion of Comments

The following discussions are keyed to the like-numbered proposals contained in Notice 80-22.

Proposal 12-1. This change clarifies the meaning of the terms "rebuilt" and "overhauled" for aircraft owners and operators by adding a new § 43.2 which specifies the conditions under which maintenance personnel may use the terms in maintenance records.

Several commenters object stating that there is no demonstrated need for the definitions. Others suggest that § 43.2 should appear as § 43.8 to be near § 43.9, or be made a part of § 43.9, since it deals with recordkeeping requirements. Aircraft owners and operators need to know what work has been accomplished on their equipment when they see these words in their maintenance records. Moreover, § 43.2 is neither a definition nor a recordkeeping requirement. Instead, the rule specifies the conditions which must be met before the terms "rebuilt" and "overhauled" may be used in required maintenance records.

Other commenters suggest that the phrase "supplemental type certificate" be added to the proposed language of § 43.2(a) (2) and (b) to clarify the position of supplemental type certificate holders. Since this addition to § 43.2(a) (2) clarifies the regulatory requirement, the phrase has been included in the final rule.

Two commenters state that § 43.2(a) requires cleaning, and is inconsistent with § 43.2(b) which does not. Cleaning is a standard practice in both instances, and the word "cleaning" has been added to § 43.2(b).

One commenter recommends the phrase "specified by the manufacturer holding the type certificate or a material, part, process, or appliance approved under § 21.305 of this chapter" be added following the phrase "tolerances and limits" in § 43.2(b) because "new parts" is not specific. "New parts" is adequate since it is known that the tolerances and limits for new parts are established during original certification by the product or part manufacturer. Accordingly, the suggested phrase has not been included.

Several commenters state the term "completely disassembled" is inappropriate because in numerous instances "complete" disassembly would damage the product beyond further service. The word "complete" is deleted. However, it is intended that disassembly should be to the extent required to make a complete determination of conformity with the product's original qualities.

A commenter states that the word "approved" as used in § 43.2(b) should be clarified to indicate that it means "manufacturer approved." The FAA disagrees since undersize and oversize parts are FAA approved through the product approval procedure.

One commenter suggests a complete rewording of § 43.2. The suggested wording would not achieve the objective of § 43.2 as proposed. Accordingly, § 43.2 is adopted as proposed with the changes discussed above.

Proposal 12-2. This change to § 43.3(a) adds the phrase "and § 43.17" to recognize that mechanical work may be performed on U.S.-registered aircraft in Canada by appropriately certificated Canadian mechanics under § 43.17.

Additionally, § 43.3(d) is amended to prohibit noncertificated persons, working under the supervision of the holder of a mechanic or repairman certificate, from performing any inspections required by Parts 91 and 125.

Section 43.3(h), as amended, permits manufacturers to perform any inspection required by Part 91 or Part 125 in addition to the 100-hour, annual, and progressive inspections previously allowed.

One commenter points out that the language of the proposal is inconsistent with that of SFAR-38 and will introduce confusion when applied to Parts 121, 127, 129, and 135. Clarifying changes have been made to § 43.3(f) which eliminate the need for existing paragraph (g). Similarly, existing paragraph (h) is clarified and redesignated paragraph (g).

A number of commenters object to the proposed use of the phrase "However, this paragraph does not authorize the performance of any inspection required by this chapter" in § 43.3(d), stating that the phrase precludes the use of noncertificated personnel when conducting inspections under § 121.367, and when an airline conducts inspections under § 91.169(e). It was also stated that it would prevent use of noncertificated personnel under § 145.59. The language has been changed by use of the phrase "required by Parts 91 and 125 of this chapter" in lieu of the proposed "required by this chapter."

Proposal 12-3. This change clarifies the difference between the terms "approve for return to service" and "return to service." The term "approve for return to service" is inserted in § 43.5 and "return to service" is inserted in Part 91.

One commenter points out that proposed § 43.5(a) makes reference to entries required by § 43.9 but not to those required by § 43.11 and that without such reference, entries regarding inspection would no longer be required. It was not intended that existing requirements be changed. Rather, as explained in the NPRM, the intent was to relocate the requirements to the maintenance or operations rules most closely associated with the user. Accordingly, the phrase "or § 43.11, as appropriate," has been inserted in § 43.5(a) (2) and makes no change to existing requirements. The rule is otherwise adopted as proposed.

Proposal 12-4. This change to § 43.7 requires persons holding at least a private pilot certificate to approve an aircraft for return to service after performing preventive maintenance under the provisions of § 43.3(g). This will result in more complete maintenance records since present § 43.5(b) does not require pilots to record, or approve for return to service, work accomplished as preventive maintenance. The provision "and in § 43.17" is added to § 43.7(a) to reflect that mechanical work may be performed on U.S.-registered aircraft by Canadian mechanics under § 43.17 as discussed under the explanation for § 43.3 (Proposal 12-2).

A number of commenters suggest that insertion of the phrase "or component part" in § 43.7(a) alone could lead to the interpretation that approval for return to service of component parts would be limited to the Administrator. It is not the intent of the FAA to limit such approvals and, consistent with present industry practice, the phrase is incorporated in all except the last paragraph of § 43.7 to make it clear that items other than a complete airframe, engine, propeller, or appliance may be approved for return to service.

A number of commenters object to proposed § 43.7(g) stating that pilots should not be permitted to approve maintenance for return to service. This is an apparent misunderstanding since the proposal permits a pilot to approve only preventive maintenance that that pilot accomplishes under § 43.3(g). Pilots may do this under the present rule. Another commenter states that the proposed wording would prohibit a student pilot from performing preventive maintenance. This is correct. The restatement clarifies this limitation on student pilots.

One commenter points out that the inconsistency between § 43.7(e) and recent changes to Part 121. For explanation, see change to § 43.1 following Proposal 12-24.

Section 43.7(g) as proposed (redesignated (f)) contained a reference to § 43.3(h). For consistency, changes to § 43.3 require that this reference be changed to § 43.3(g). Changes made to § 43.7(e) eliminate the need for paragraph (f), since commercial operators are included in the term "an operating certificate issued under Part 121, 127, or 135", and accordingly, present § 43.7(f) is deleted.

Proposal 12-5. This change to § 43.9 will, in addition to present requirements, require maintenance record entries to identify the kind of certificate held by the person who approved the aircraft, engine, propeller, appliance, or component for return to service. With this change, all persons, including pilots performing preventive maintenance, are required to record approval for return to service in accordance with § 43.9(a). This change also requires pilots, mechanics, and air agencies, to indicate the kind of certificate under which the actions were taken, that is, repair station, mechanic, private pilot, etc. This information will provide the owners or operators of aircraft with identification of the person who released the aircraft for return to service after maintenance, preventive maintenance, or alterations and should indicate that the person is properly certificated and rated to do so.

In recognition of the fact that maintenance can be performed on component parts, the phrase is added to the list in § 43.9(a).

A provision is added stating that the signature of the person approving the aircraft, airframe, aircraft engine, propeller, appliance, or component part for return to service signifies only that the work described has been satisfactorily performed. This change makes it clear that the person making the approval is approving only the maintenance performed.

Under Part 135, certain aircraft are maintained under continuous airworthiness maintenance programs that are similar to programs approved under Parts 121 and 127. Section 43.9(b) is revised to allow Part 135 operators to use the recordkeeping procedures required of Part 121 and Part 127 operators.

Finally, § 43.9(c) excepts all aircraft inspections required by Part 91, Part 123, Part 125, and § 135.411(a) (1) from § 43.9, since requirements for these entries are contained in § 43.11.

One commenter suggests that § 43.9 be revised to include a requirement that "time in service" be made a part of the maintenance record and that the rule specify when the record entry must be made. The first suggestion is beyond the scope of this Notice. While § 43.9 will not specifically require recording of "time in service" by the person performing the work, § 91.173 already requires the owner to maintain this data. A correlation may be drawn between dated "time in service" entries and dated maintenance entries when the time in service entries are properly kept. The second recommendation, if included, would be redundant since § 43.5 requires the entry be made prior to approval for return to service.

Another commenter states the term "approved for return to service" should be substituted for "has been performed satisfactorily." The signature signifies approval for return to service and the use of the term "has been performed satisfactorily" is an additional certification as to performance in accordance with §§ 43.13 and 43.15. This commenter also suggests that legibility requirements be included in § 43.9. Since legibility is a practical necessity and entries which are not legible do not satisfy the purpose of § 43.9, such requirements have not been incorporated.

One commenter suggests that § 43.9(a) (4) be broken into two paragraphs to highlight the additional requirements when major repairs or alterations are involved. The suggestion is incorporated.

Another commenter states that the revisions to § 43.9 would prohibit much of the preventive maintenance presently accomplished under Part 121. Preventive maintenance as used in § 43.9 deals only with that maintenance which a pilot may do on an aircraft owned or operated by that pilot. It is not synonymous with the term as used in Part 121 and the change made to § 43.9 will not require changes to procedures used under Part 121.

Proposal 12-6. This change to § 43.11 adds the inspection recording requirements of § 91.217, Part 123, Part 125, and § 135.411(a)(1) to § 43.11. (See last paragraph of explanation for § 43.9, Proposal 12-5.) Additionally, it requires the person approving an item for return to service after inspection, to include the applicable kind of certificate held by that person and provides consistency between the requirements of § 43.11 and § 43.9.

The inclusion of the kind of certificate in maintenance record entries under § 43.11(a)(3) is explained under the explanation for § 43.9 (Proposal 12-5).

The change also requires that a list of discrepancies be provided to the owner or lessee when an aircraft is found unairworthy as a result of any inspection conducted under Part 91, Part 123, Part 125, or § 135.411(a)(1). Owners and lessees, under several inspection systems, are provided lists of discrepancies and use them to analyze previous inspections and recurring discrepancies. Owners and lessees having their aircraft inspected under the 100-hour inspection system should also be given this advantage, and a requirement for such lists in the 100-hour inspection is included.

Inspections required by § 135.419 are excluded since these approved inspection programs specify the means by which the operator will control the repair of defects found during inspections. Except for inclusion of the 100-hour inspections under these provisions, the rule is essentially unchanged.

For an explanation of the addition of "component parts" to the list of items set forth in § 43.11(c), see the explanation for § 43.9 (Proposal 12-5).

One commenter suggests that requirements be added in § 43.11 to include the rating held in all maintenance record entries and to establish legibility standards. The rule as amended contains a requirement for ratings and certificate numbers to be made a part of entries under § 43.11. Entries which are not legible may not be construed as satisfying § 43.11.

Another commenter suggests that the second time the phrase "in accordance with a progressive inspection" appears in § 43.11(a)(6) is redundant. The commenter is correct and the phrase is deleted.

One commenter objects to the disapproval provisions in § 43.11(a) stating that such entries are detrimental to future sales, prevent the owner from getting a second opinion, prevent continued operation of the aircraft if inspections are performed earlier than required, and prevent the pilot from operating with equipment inoperative.

When disapproval entries are made they must be followed by an entry showing correction of the item prior to operation. The FAA does not agree that a record showing discovery and proper correction of a discrepancy would devalue an aircraft. Neither would such entries prevent second opinions. If a second opinion is desired, the aircraft may be operated under a special flight authorization (ferry permit), another mechanic may be called in, or the local FAA inspectors may also be available. Further, any operation subsequent to the discovery of a discrepancy is presently prohibited by § 91.165.

This commenter also objects to reporting discrepancies to the FAA. The FAA's primary use of these discrepancy lists has been to prevent violations by aircraft owners and operators from inadvertent operation of their aircraft prior to correction of the discrepancies. Discrepancy lists have not been submitted to the FAA for the other inspection systems provided by Part 91 or Part 125. The number of violations under these other inspection systems is not significantly greater than experienced with the annual inspection system. Therefore, upon further consideration and in response to comments, the proposed requirement to submit discrepancy lists to the FAA is not incorporated in the rule.

Proposal 12-7. Although § 43.12 presently prohibits fraudulent entries in maintenance records, fraud or proof of fraud is frequently absent. This change to § 43.12 provides a prohibition against intentionally false entries in required maintenance records and reports similar to the prohibitions found in §§ 61.59(a)(1) and 65.20(a)(1) and provides a uniform standard in the application of the regulations. Aircraft owners and operators rely on the accuracy of these records in meeting their airworthiness responsibilities and as a detailed record of maintenance performed on their aircraft. Note that Title 18 U.S.C. Section 1001 provides severe sanctions in the form of a $10,000 fine or imprisonment of not more than 5 years, or both, for anyone who knowingly makes such fraudulent or false entries.

Proposal 12-8. The inspection requirements of § 91.217 through § 91.219 are moved to § 91.169, and the additional performance rules for inspections are consolidated in § 43.15. The need for § 43.13(d), which provided performance rules for inspections conducted under § 91.217, no longer exists, and § 43.13(d) is deleted.

Section 43.13(c) is revised to use language consistent with § 43.3 and to make it compatible with the terminology of Parts 121, 127, and 135 introduced by SFAR 38. The changes are not substantive as to requirements or applicability.

Proposal 12-9. This change extends the applicability of §§ 43.15(a) and (b) to all inspections instead of only 100-hour, annual, and progressive inspections.

It is important that all inspections performed provide a determination that the aircraft inspected meets all applicable airworthiness requirements. It is also important that the rotorcraft systems, defined in §§ 43.15(b) (1) through (4), be inspected in accordance with the maintenance manual of the manufacturer concerned. Rotorcraft inspected in accordance with Part 121 or Part 127 are exempt from the requirements of § 43.15(b). The reference to inspections required by Part 135 is added to § 43.15(a) since § 135.411(a) (1) requires that aircraft type certificated for a passenger seating configuration of nine seats or less, excluding any pilot seat, be maintained under Part 91, Part 43, and certain sections of Part 135.

One commenter states that § 43.15(b) could be interpreted to mean that each time any kind of inspection is accomplished on a helicopter the items listed in §§ 43.15(b) (1), (2), (3) and (4) must be inspected and thus, result in redundant inspection. In response to this comment, the language has been clarified. The same commenter states that Part 135 certificate holders operating helicopters for 10 or more passengers should be afforded the same privileges as Part 121 and Part 127 operators. The language change affords such privileges and is consistent with Part 135 requirements. On further consideration, language has been added to that proposed as § 43.17(a) to make § 43.13(a) consistent with § 43.11(a) (7). The language makes it clear that instructions and procedures contained in inspection programs provided for under Parts 123, 125, 135, and § 91.169(e) must be followed conducting those inspections.

Proposal 12-10. This amendment to § 43.17 allows certain Canadians, as defined in § 43.17(a), to perform any inspection, except an annual inspection, required by amended § 91.169 of this chapter. The previous rule allowed Canadians to perform only the 100-hour inspection. These changes permit owners and operators of all types of U.S.-registered aircraft the privilege of having work accomplished while the aircraft are in Canada. However, only U.S. certificated mechanics with inspection authorizations who comply with §§ 65.91 through 65.95 may perform annual inspections.

Proposal 12-11. This amendment to Appendix A of Part 43 changes the paragraph on preventive maintenance to explicitly state that preventive maintenance is limited to the work listed, provided it does not involve complex assembly operations. Additional items have also been included.

A number of commenters suggest that the term "small fabric repairs" would be subject to abuse and recommend more specific language. A parenthetical insert is added to the sentence directing the owner/operator to the balloon manufacturer's instructions regarding the specific balloon repair contemplated.

One commenter points out that the word "gondola" is not used in Part 31, which instead employs the term "basket." Accordingly, the term, "basket" has been substituted for gondola in items (9) and (28).

A number of commenters state that the inclusion of burners in item (28) would appropriately recognize what has been standard practice in the ground transport of balloons. Inclusion of burners would not be detrimental and this change is made.

One commenter objects to preventive maintenance being limited to only those items listed under Appendix A of Part 43. The contention is that this will unnecessarily restrict preventive maintenance in the case of Part 121 certificate holders. The term "preventive maintenance," as used in Appendix A, refers to only that maintenance which may be accomplished by a pilot under § 43.3(g). The term "preventive maintenance" as used in Part 121 is unchanged.

One commenter recommends that item (24) be broken into two items, separating replacement of lead acid and nickle cadmium batteries into two categories, and limiting service to lead acid type batteries. The FAA does not agree since there is no demonstrated problem with the present servicing rule. The phrase "checking fluid levels and specific gravity" has been replaced by "servicing" to make the item compatible with all battery types.

Proposal 12-12. This amendment adds a new paragraph (c) to Appendix E of Part 43 which provides a total system integration test requirement which will insure that altitude reporting equipment and ATC transponders perform their intended functions when integrated in an airplane as a system.

The paragraph, as proposed in Notice 80-22, incorporated part of Proposal No. 67 of the Operations Review which was submitted by the Air Transport Association (ATA). It was proposed in part that, in addition to the 23 test points appearing in Table 1 of Appendix E of Part 43, two additional test points, 1,100 feet and 1,800 feet, be added. It was explained that this would insure proper function of the automatic pressure altitude reporting equipment and freedom from latent defects which would otherwise go undetected. The explanation also indicated that this proposal would impose a minimum burden on the users since tests could be conducted simultaneously with existing altimeter tests and using the same personnel and test equipment.

While the ATA supports the proposal as an improvement over the existing regulation, it points out that the proposal does not include their recommendation that the transition points for both the "on" and "off" position for each output bit (channel) be checked in both increasing and decreasing altitude and that, at transition, the displayed pressure altitude be within ±75 feet of the nominal pressure altitude for that transition point.

The ATA also comments that one airline suggests there is no need to test the altimeter and encoder at all of the points specified in Appendix E. The airline suggests that tests of each altitude code segment of the encoder—2300, 2500, 3800, 4300, 4800, 6800, 14800, and 30800 are sufficient to ensure proper operation of each altitude code segment of the encoder.

Another commenter questions requiring a check at 23 points each time an altimeter or transponder is replaced and suggests instead, that a check at 2 or 3 points would provide the necessary accuracy assurance.

A third commenter states that based on their experience the specified check at 23 different altitudes is excessive. The commenter states that they have been using 12 points and consider even that excessive.

In consideration of the comments, the FAA has amended proposed Appendix E, paragraph (c), to require that only a sufficient number of test points be checked to ensure that the altitude reporting equipment and ATC transponder perform their intended functions through their entire range while both ascending and descending.

A number of commenters speak to the correspondence value of 125 feet. This value is based on the requirement of § 91.36(b) and its reasonable achievability when a single source (aneroid) is used to feed the pilot's display and the pressure altitude digitizer. The value represents three elements: a variation of ±50 feet which may exist between the pressure information from the aneroid and the information actually digitized; an uncertainty factor of ±50 feet which can exist because of reporting in 100-foot increments; and, in installations where the altitude reporting equipment has an optional pilot's display, the difference of 25 feet allowed between aneroid output feeding the digitizer and the pilot's display.

The achievement of correspondence is difficult when separate aneroids are used for the pilot's altimeter and the digitizer input. Careful matching of aneroids is necessary to achieve a correspondence value of 125 feet or less.

Proposal 12-13. This amendment makes § 91.161 more specific regarding the continuous airworthiness maintenance programs of Part 135 by reference to § 135.411(a)(2). In addition, even though progressive inspections are moved to § 91.169 from § 91.171, § 91.171 is still referenced since the new § 91.171 deals with altimeters and altitude reporting equipment tests and inspections.

Proposal 12-14. This amendment to § 91.165 removes the reference to aircraft inspected under Subpart D since those inspection requirements are transferred to the presently referenced § 91.169. The provisions of § 91.177, concerning ATC transponder tests and inspections are transferred to § 91.172, and reference to § 91.172 is added as an aircraft inspection procedure. Also, to conform this section to other sections in this chapter, the term "approved for return to service" is substituted for the term "release to service." One commenter suggests that the words "aircraft and" following "appropriate entries in" in the second sentence be deleted. Deletion of these words would leave the appropriate location of aircraft inspection entries unspecified. This is inappropriate and the suggestion is not incorporated.

Proposal 12-15. This amendment to § 91.167 changes the heading and rule to set forth specific conditions which must be met after maintenance, preventive maintenance, rebuilding, or alterations have been performed, and before the aircraft is operated. The word "repairs" is deleted as redundant since the word "maintenance", by definition, includes repairs. Because § 43.5 is amended to make it clear that "approval for return to service" does not involve operation of the aircraft, § 91.167(a) is changed to prohibit any person from operating an aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless it has been approved for return to service by a person authorized under § 43.7 of this chapter and the maintenance record entries required by § 43.9 or § 43.11 have been made. That is, the aircraft must be approved for return to service prior to any operation, including test flights provided for in § 91.167(b). See Proposal 12-3 for further explanation.

One commenter states that a requirement to log the flight required by § 91.167(b) is of no value unless the results of the operational check are indicated. Although the language is not specific, a requirement that the operational check results be part of the entry is clearly implied. Therefore, the section is unchanged.

One commenter suggests that the language change to § 91.167 would introduce a question as to what part of repairs, alterations, etc., would require flight tests. The commenter states that the mere fact that the change was made would raise the question. Sections 91.167(a), (a)(1), and (a)(2) were added for the reasons stated in the second paragraph of this explanation. While § 91.167(b) has the word "maintained" substituted for "repair" because it is a defined term, the FAA does not intend to require reevaluation of existing programs or procedures. Rather, it restates when flight tests are required without change to those requirements.

Proposal 12-16. This amendment to § 91.169 transfers the inspection and maintenance requirements of §§ 91.171, 91.217, and 91.219 to § 91.169, consolidating the inspection requirements of Part 91 in one section. Transferring the inspection requirements of § 91.217 to § 91.169 removes the provisions from the applicability of § 91.181, which did not provide for use of a § 91.217 inspection program when a U.S.-registered airplane is leased to a foreign operator engaged in common carriage. In recent years, the FAA has frequently issued exemptions to foreign operators engaged in common carriage to allow use of a § 91.217 inspection program. Transferring the inspection requirements into Subpart C permits the use of the continuous inspection program by these foreign operators and exemptions will no longer be required. These changes do not affect aircraft subject to Part 125. This action is consistent with Executive Order 12291 and the FAA's continuing effort to reduce unnecessary administrative burdens on the public.

Additionally, § 91.172 allows the Administrator to require revision of any inspection program approved under § 91.169(f)(5). This provides a regulatory procedure for requiring changes in programs when needed to ensure an adequate level of safety. See also the discussion of Proposal 12-19.

The reporting requirements of §§ 91.217(c) and (d) were established in 1972 with adoption of Subpart D of Part 91. These reporting requirements have proven cumbersome and ineffective and are replaced by § 91.169(f) which substitutes a maintenance record entry identifying the inspection option selected under § 91.169 and the name and address of the person responsible for scheduling the required inspections. This is consistent with the FAA's continuing effort to reduce reporting requirements and is in accordance with Executive Order 12291 and the Department of Transportation regulatory policies and procedures to reduce unnecessary administrative burdens on the public.

Section 91.169(h) provides that if an owner or operator changes inspection programs, the time in service, calendar time, or cycles of operation accumulated under the old program must be applied in determining inspection due times under the new program. This prevents operation under one program until the major inspection of an item is due, then changing programs and starting at zero inspection time to delay or avoid a major inspection of the item.

One commenter points out that Part 125 should be included in § 91.169(c)(2) as aircraft not subject to the section. The FAA agrees. Part 125 was not a rule when the proposal for § 91.169 was published in the *Federal Register* and the number 125 is added following "Part 123" in § 91.169(c)(2).

One commenter remarks on the slight change in terminology in the proposal when dealing with "turbojet multi-engine" airplanes and suggests that since no change was intended, identical language be used. In response, the proposed terminology change is not adopted.

Proposal 12-17. This amendment to § 91.170 redesignated it as § 91.171 and requires tests and inspections, within the preceding 24-calendar months, of: pressure altitude reporting equipment; tests and inspections whenever such systems are opened and closed; and data correspondence checks between altitude and reporting transponder each time the altimeter or the encoding function has been subjected to maintenance where data correspondence error could be introduced.

Accurate altitude reporting is essential to safety. Previous regulations required accuracy checks upon initial installation of the system, but there was no provision for checks following maintenance which could affect the integrity of the system. Calibration or maintenance functions on the altimeter or the reporting equipment could lead to improper data correspondence. Therefore, this equipment should be checked for accuracy any time an error could be introduced.

Similarly, the static pressure system could be adversely affected following an opening of the system. Accordingly, this amendment requires test and inspection of the static pressure system after any opening and closing. This amendment also provides that altimeters and transponders approved under Technical Standard Orders are considered to be tested and inspected as of the date of their manufacture. However, even if the altimeter (or transponder) has been manufactured and bench checked within the preceding 24-calendar months, the integrated system would require test and inspection at the time of installation and, thereafter, as specified in § 91.171(a).

A number of commenters point out that the term "any opening" as it appears in § 91.171(a)(2) could be interpreted to require a static system test after opening system drain valves, alternate static source valves, or when a system is opened to attach test equipment. In response to these comments, an exception is included regarding these valves. No exception is made for opening the lines to attach test equipment. It would be illogical to require a system test anytime a system is opened and not require a test when opened to attach test equipment. The same or similar type system fittings are involved in both instances and would, therefore, be equally subject to leakage.

A number of commenters state that compliance with all of Appendix E of Part 43 is not required when a static system is opened or closed and that only paragraph (a) of the Appendix should be required. The rule is made specific in this regard.

One commenter suggests that reference to ATC transponder equipment in § 91.171(a) (3) be deleted since a properly maintained transponder will not effect altimeter-encoder correlation and retention of this language would require unnecessary testing. The phrase, "which may affect data correspondence" adequately limits the instances in which transponder maintenance will require system tests. The reference is, therefore, retained. Except for the changes noted, the rule is adopted as proposed.

Proposal 12-18. The progressive inspection requirements of § 91.171 are transferred to § 91.169. (See Proposal 12-16, § 91.169.) This amendment also transfers the ATC transponder tests and inspection requirements of § 91.177 to new § 91.172 in order to consolidate all of the inspection requirements of Part 91 into consecutively numbered sections. This is consistent with Executive Order 12291. The phrase "after January 1, 1976" has been removed from former § 91.177 (now § 91.172(a)), and "must" is substituted for "may" in § 91.172(c).

A number of commenters state that Part 135 certificate holders should be granted the same privileges regarding maintenance as Parts 121 and 127 certificate holders. Inasmuch as Part 135 certificate holders are authorized, under certain circumstances, to accomplish maintenance on aircraft, aircraft engines, propellers and appliances, they should be authorized to conduct these tests. Section 91.172(c) (2) is changed to include this privilege. The language is also changed to be consistent with other sections of Parts 91 and 43.

One commenter suggests that § 91.172 be added to the list of sections not applicable to Part 121 operators. This may be desirable, however, it is beyond the scope of Notice No. 80-22 and should be given consideration in a separate action.

Proposal 12-19. Section 91.170(a) establishes a procedure by which the Administrator may require revision of an inspection program approved under § 91.169(f) (5) as operational experience is gained. Inspection programs approved under §§ 91.169(f) (1) through (f) (4) are programs approved under Parts 121, 123, and 135, or recommended by the manufacturer. The FAA's significant experience with these programs does not indicate a need to revise them on an individual basis. They are continually revised by the holders as experience requires. Section 91.169(f) (5), on the other hand, permits the registered owner or operator of an aircraft to have an individual inspection program approved. Neither the owners/operators, nor the FAA has experience with these programs. Accordingly, revision may be necessary as operating experience is gained. This procedure provides for this revision.

Sections 91.170(b), (c), and (d) provide procedures for seeking reconsideration of any notice of required revision by the Administrator to an operator having an aircraft inspection program approved under § 91.169(f) (5). These procedures are consistent with those provided by §§ 121.373 and 135.431.

One commenter states that while the rule provides for an appeal from a notification to change a program, this is not realistic relief since the appeal must be made to the Flight Standards District Office (which is usually the office requesting the change). As the commenter states, the rule requires the petition to be submitted to the office making the request. However, internal directives require that it be forwarded to a higher level for disposition and the fears of the commenter are unfounded.

Proposal 12-20. Previous § 91.173(a) required each registered owner or operator to keep a list of the major alterations made to each airframe, engine, propeller, rotor, and appliance. However, such lists do not contain sufficient details of alterations to provide for continued maintenance and inspection subsequent to the alteration. This amendment requires that copies of the forms prescribed by § 43.9 for major alterations, which contain the necessary details, be made a part of the aircraft records.

One commenter correctly points out that the reference to § 91.177 in proposed § 91.173(a) is in error due to redesignation of § 91.177 and § 91.171. Accordingly, § 91.173 has been editorially amended for consistency with these amendments.

Similarly, another commenter correctly points out that the reference to § 43.9 in proposed § 91.173(b) (3) is in error and this is corrected to read § 43.11.

Proposal 12-21. See the explanation for 12-18 (§ 91.171).

Proposal 12-22. This amendment changes § 91.181(a) to refer to § 91.169 since the requirements of §§ 91.217, 91.219 and 91.169 are consolidated as § 91.169. Part 135 specifies inspection requirements for all aircraft operated thereunder and reference to Part 135 here is redundant and deleted.

This amendment also replaces the word "subpart," in the last sentence of § 91.181(a) with the word "part." When issuing Amendment 91-101 (37 FR 14758; July 25, 1972) the FAA stated "there is no demonstrated need at this time to require small turbopropeller-powered multiengine airplanes to be operated under the rules of Subpart D." The FAA further stated this decision "does not apply to the inspection program requirements which should be required for all turbine-powered multiengine airplanes (turbopropeller and turbojet powered airplanes) as proposed in the Notice regardless of whether they are large or small." Section 91.181 of Subpart D provides that small turbopropeller-powered multiengine airplanes do not have to be operated under that subpart. However, the regulation provides that these airplanes are to be inspected in accordance with §§ 91.217 and 91.219 of Subpart D, but qualifies it by adding "when they are operated under this subpart." This qualification is incorrect since, except as otherwise provided in Part 135, they are to be inspected under this subpart whether or not they are operated under it. Therefore, the word "subpart" is changed to "part" to correct the error.

Proposal 12-23. The inspection provisions of § 91.217 have been transferred to § 91.169. See Proposal 12-16 for explanation.

Proposal 12-24. The inspection provisions of § 91.219 are transferred to § 91.169. See Proposal 12-16 for explanation.

Economic Evaluation

The rule changes reviewed above are either relieving, clarifying or they greatly improve the value of maintenance records to aircraft owners or prospective aircraft owners. Each change is covered in the following summary.

Proposal 12-1—Records of Overhaul and Rebuilding. This amendment establishes conditions which must be met before the terms "overhaul" and "rebuilt" may be used in maintenance records. There is no cost associated with this rule, as it sets no new standard or requirement. There is a nonquantifiable benefit—protection of purchasers of aircraft equipment or services by more fully documenting aircraft, engine, propeller or appliance maintenance histories.

Proposal 12-2—Persons Authorized to Perform Maintenance. This amendment makes three changes to § 43.3: one which references other regulations; one which is clearly relieving; and a third which clearly states that only certificated persons may conduct inspections.

First, a change to § 43.3(a) provides consistency between this rule and § 43.17.

Second, a change to § 43.3(h) extends the privileges of manufacturers by allowing them to perform any inspection required by Part 91 or Part 125, instead of only 100-hour, annual, and progressive inspections. This change is clearly relieving.

Finally, a change to § 43.3(d) prevents noncertificated persons, working under the supervision of the holder of a mechanic or repairman certificate, from conducting any inspection required under Parts 91 and 125. Air carrier and manufacturers' association comments related to this amendment argue an economic need associated with continuing certain work with noncertificated persons. These comments have been basically accommodated by a change in the applicability of the rule. No details as to the economic impact of these few situations were provided by the commenters.

There may be a few instances where inspections covered by regulations have been done by noncertificated persons under the supervision of a certificated mechanic, but the real impact of this change is *de minimis* since in present practice the majority of these inspections are currently conducted by certificated persons.

Proposal 12-3—Return to Service After Maintenance. This amendment clarifies the difference between "approve for return to service" and "return to service." This clarification involves no cost, and sets no new standard.

Proposal 12-4—Persons Authorized to Approve Aircraft etc. for Return to Service. This amendment involves several clarifications to existing § 43.7, plus an added recordkeeping requirement for those persons who wish to perform preventive maintenance on private aircraft they own or operate.

The clarifications involve referring to § 43.17, which concerns mechanical work done by Canadians, and the addition of component parts in the list of items which can be returned to service by the various parties subject to this amendment. These are no-cost clarifications and do not set any new standard.

This amendment requires that records be kept for preventive maintenance, as well as maintenance, rebuilding and alteration. This is dealt with in Proposal 12-5.

Proposal 12-5—Maintenance Records. This amendment adds to maintenance reporting requirements in two ways. First, it requires the person approving maintenance for return to service to indicate, in the maintenance record, the kind of certificate that person holds. Second, it adds preventive maintenance to the types of maintenance requiring formal documentation in the relevant maintenance record.

Both of these changes, while they add to recordkeeping, involve *de minimis* costs which are well outweighed by benefits.

Present § 43.9 specifies that when a person performs maintenance, that person must enter a description of the work performed, the date of completion of the work, the name of the person performing the work, the signature of the person approving for return to service and his or her certificate number. This amendment requires a certificated mechanic to note on the record the type of certificate he or she has. This should take less than 5 seconds and is truly a minor cost.

While there is no current requirement for pilot/owners who do preventive maintenance to enter such maintenance in the maintenance record, most pilot/owners now enter such information in the maintenance record of the aircraft. It will take less than a minute to add an item to the maintenance record, and it is, therefore, a minor cost. While there is not sufficient information to estimate the cost, FAA believes that any moderate cost is balanced by the benefit of a more accurate record of maintenance performed on aircraft. The absence of comments on this aspect of the amendment supports the conclusion that its cost impact is minor.

These changes, and a similar one in Proposal 12-16, involve minor additions to the recordkeeping process which are balanced by general benefits associated with the improved equipment record that results from the minor changes. While the benefits are real, they cannot be directly quantified.

There are identifiable benefits, though they are not quantifiable. In assessing the aircraft's maintenance record, a prospective purchaser cannot always determine that appropriate persons always performed the maintenance. This situation is corrected by the amendment. Also, accidents could be caused by failure to perform preventive maintenance properly, and without a requirement to record preventive maintenance, investigative authorities might not discover the true causes of an accident. Likewise, without a complete record of maintenance including preventive maintenance, the causes of accidents may be improperly placed.

Proposal 12-6—Inspection Recording Requirements. This amendment accomplishes three basic things. First, it acts to clarify the inspection recording requirements of § 43.11. Second, it requires that the person approving an item for return to service indicate in the maintenance record the applicable kind of certificate held by that person. Third, a list of discrepancies must be provided to the owner or lessee when an aircraft is found unairworthy under an inspection required by Part 91.

The change to inspection recording requirements involves the addition of "component part" to the list of items for which entries must be made in the maintenance record after maintenance, etc. This change does not cause any party to incur a new cost, since it only adds one item to a list of items currently required to be entered in the maintenance record.

The requirement to show the type of certificate held by the person approving an item for return to service is the same as the requirement in Proposal 12-5 and involves only a minor cost.

Except for 100-hour inspections, present rules require that the owner or lessee be provided a signed and dated copy of a list of discrepancies, if the aircraft is not approved for return to service. This allows the owner of such an aircraft to "shop around" for the required part or service required to correct the discrepancy, and immediately have the aircraft returned to service after a "sign off" by the person performing the service or installing the required part. The owner whose aircraft fails a 100-hour inspection has no list of discrepancies, and, if he wishes to shop around for the required parts or service, he may have to have the aircraft fully inspected again before it can be returned to service. Therefore, allowing the same system for 100-hour and other inspections provides a consumer protection benefit to owners.

In addition, the final rule eliminates a requirement to provide the Administrator with copies of lists of discrepancies for inspections conducted in accordance with § 91.169. This change is clearly relieving.

Proposal 12-7—Intentionally False Maintenance Entries. This change to § 43.12 changes the legal criteria for prosecution of persons who make false statements in maintenance records.

This amendment provides an unquantifiable benefit to society since it makes engaging in such illegal practices more likely to result in enforcement action, and should, therefore, decrease the frequency of such activity.

Proposal 12-8—Inspection Requirements Moved. This amendment moves certain inspection requirements within the FAR, and deletes a present requirement. The changes are not substantive as to requirements or applicability, and thus is a no-cost modification.

Proposal 12-9—Inspection Required. This amendment involves no new requirements for inspection. The amendment provides references to inspection requirements under Parts 91, 123, 125 and 135. Since there are no new requirements, this amendment is a no-cost clarification of current regulations.

Proposal 12-10—Canadian Inspections. This amendment relaxes regulations concerning who may perform certain aircraft inspections. The amendment involves no new requirements, and, therefore, no costs. It improves competition and relaxes regulation, therefore, providing a positive though unquantifiable benefit.

Proposal 12-11—Preventive Maintenance. This amendment expands the list of items defined as preventive maintenance. In particular, it updates the list to include balloon preventive maintenance, on which previous regulations were silent. The proposal involves no new requirements, and, therefore, no costs.

Proposals 12-12, 12-17, 12-18—Altimeter Systems Tests (Associated deletions 12-21, 12-23, and 12-24). These amendments involve a common aircraft system, the altimeter/encoder/transponder system. The function of these instruments is to determine the altitude at which the aircraft is operating, and to encode this altitude into a radio signal and transmit a signal to the ground properly identifying the aircraft altitude. Proper functioning of the altimeter/transponder system is of critical importance to airspace control and aircraft separation.

There are three major components to the altimeter/transponder system, and several secondary components. The three major components are the altimeter, the digitizer or altitude encoder, and the transponder. The secondary components are the static system, cables connecting altimeters, encoders, transponders, and the antenna which transmits the radio signal with the encoded altitude.

Both the altimeter and the transponder are required to be checked at least each 24 months. The tests required are spelled out in Appendix E and Appendix F of Part 43. The present regulations do not spell out specific standards for tests of the system, and while these proposals specify such a test, this is not really a new requirement.

The original proposal (Notice No. 80-22) would have required full Appendix E and F tests after maintenance or repair of the altimeter or transponder. This requirement was eliminated in response to comments and after review of the proposal in light of Executive Order 12291. The amendment adopted will require only a modified test of the equipment as installed. This is a minimum test which must presently be performed before an aircraft can be returned to service after repair or maintenance of the altimeter or transponder. The test is simply a formalization of the Part 43 requirement that, after maintenance and installation of aircraft systems, the parts must be tested to determine whether they are capable of performing their intended function (§ 43.13(b)). The test also restates an already existing Part 91 regulation relating to tests of installed altimeter transponders (§ 91.36).

Proposal 12-13—Applicability of § 91.161. This amendment involves only internal consistency within the FAR, and clarifies the applicability of certain sections of Part 91 to aircraft maintained in accordance with a continuous airworthiness maintenance program. There is no new requirement, and the proposal is a no-cost editorial clarification of the rule required by other changes.

Proposal 12-14—Maintenance Required. This amendment changes references within the FAR and clarifies the disposition of maintenance for aircraft which are maintained and inspected under provisions of §§ 91.169, 91.171, and 91.172. This is not a new requirement, and the amendment is editorial and involves no cost.

Proposal 12-15—Operation after Maintenance. This amendment changes § 91.167 to prohibit any person from operating an aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless it has been approved for return to service by an authorized person, and the proper maintenance record entries have been made in the aircraft records. There is no substantive change implied by the amendment, and no new costs are incurred.

Proposal 12-16—Inspection and Maintenance Requirements. This amendment involves a consolidation of several inspection and maintenance requirements into one section of Part 91. It also provides relief to foreign operators who operate leased U.S.-registered airplanes by allowing them to use a continuous inspection program without the need for exemptions.

The amendment is clarifying and relieving, and involves no new requirements.

Proposal 12-19—Procedures for Revision of an Inspection Program. This amendment is directly related to Proposal 12-16, which consolidates a number of inspection options for operators in § 91.169. One of those options, § 91.169(f) (5), allows the owner or operator of an aircraft to establish his own individual inspection program, which must be approved by the Administrator.

The FAA has found need to require changes to individually tailored inspection programs as experience is gained, to ensure safety of operations. This amendment gives the Administrator the authority to require any such changes and sets up a procedure by which operators can petition the Administrator for reconsideration of changes required.

Proposal 12-20—Details of Maintenance Records. This amendment modifies § 91.173 in order to correct certain references and in order to require that the maintenance records of an aircraft include certain information for each major alteration to the airframe, engines, rotors, propellers and appliances. This information is already provided to aircraft owners, and most owners incorporate the information into maintenance records. It requires no new work or reporting and is, therefore, a no-cost modification. No substantive comments were received concerning this proposal to modify aircraft records.

Proposal 12-22—Changes to § 91.181. This amendment makes several changes to § 91.181 to correct a number of references to conform to the previously discussed proposals. No substantive change results from adoption of this amendment.

Amendment to § 43.1 and § 43.16

Amendment 121-165, effective October 16, 1980, changed Part 121 (by adding § 121.153) to permit U.S. air carriers to use foreign-registered aircraft, subject to certain conditions and limitations. Similar changes were made to Parts 127 and 135. These changes implemented the International Air Transportation Competition Act of 1979 (Pub. L. 96-192). This amendment makes § 43.1 compatible to Parts 121, 127, and 135 and other amendments to Part 43 by extending maintenance privileges and procedures to these foreign-registered aircraft when they are used under the provisions of Parts 121, 127, and 135. Notice 80-22 did not propose amendment of § 43.16 which became effective September 11, 1980, subsequent to the Notice. However, since the provisions of § 91.217 are now lodged in § 91.169, the reference in § 43.16 to § 91.217(e) is changed to read "§ 91.169(e)."

These amendments are clarifying and editorial in nature and do not impose a burden on the public, notice and public procedure are unnecessary, and this change is adopted as noted.

Paperwork Reduction Act

Information collection requirements contained in this regulation for §§ 43.9 and 43.11 have been approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act of 1980 (P.L. 96-511) and have been assigned OMB control number 2120-0020. Information collection requirements for §§ 91.167, 91.169, and 91.173 have been assigned OMB control number 2120-0005.

Adoption of the Amendments

Accordingly, Parts 43 and 91 of the Federal Aviation Regulations (14 CFR Parts 43 and 91) are amended effective October 15, 1982.

Sections 313, 314, 601 through 610 of the Federal Aviation Act of 1958, (49 U.S.C. 1354, 1355, and 1421 through 1430); Section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

NOTE: These amendments are generally relieving, clarifying, or editorial in nature and will have minimal impact. Where additional requirements are imposed, their imposition results in increased value of maintenance records for aircraft owners or increased reliability of critical aircraft systems. I certify that the amendment will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. The Federal Aviation Administration has determined that this document involves a regulation which is not a major rule under Executive Order 12291 or a significant regulation under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

Amendment 91-182

Reduction in Required Advance Notice to Air Traffic Control for Nontransponder Operations

Adopted: January 17, 1983 **Effective: April 11, 1983**

(Published in 48 FR 6102, February 10, 1983)

SUMMARY: This amendment to the Federal Aviation Regulations reduces from four hours to one hour the required advance notice that a pilot must give to the appropriate Air Traffic Control (ATC) facility in order to fly a nontransponder-equipped aircraft in Terminal Control Areas (TCA's) and generally in controlled airspace above 12,500 feet MSL. The amendment reduces the advance notice burden on pilots operating aircraft without transponders and permits more efficient functioning of the ATC system.

FOR FURTHER INFORMATION CONTACT: Gene Falsetti, Air Traffic Rules Branch, AAT-200, Federal Aviation Administration, 800 Independence Ave., SW., Washington, DC 20591; telephone (202) 426-3128.

SUPPLEMENTARY INFORMATION:

This amendment is based on Notice of Proposed Rulemaking No. 81-13 published in the *Federal Register* on October 22, 1981, (46 FR 51866). All interested persons were given an opportunity to participate in making the amendment and due consideration was given to all matters presented. This amendment and the reasons for its adoption are the same as those stated in Notice No. 81-13.

Background

Section 91.24, as adopted by Amendment 91-116 (36 FR 14676; June 4, 1973), requires the use of airborne radar beacon transponders in certain controlled airspace to enhance the radar image of the aircraft which is presented to the air traffic controller, provide radar target information, and enable the ATC system to handle an increased volume of air traffic safely. The rule also specifies the technical requirements the transponders must meet and authorizes ATC to permit certain deviations from the rule. In accordance with paragraph (3) (c) of § 91.24, requests to operate an aircraft in a TCA or in controlled airspace above 12,500 feet MSL without a transponder must be submitted to the ATC facility having jurisdiction over the airspace concerned at least four hours before the proposed operation.

Notice No. 81-13 proposed to reduce the required advance notice to ATC of a nontransponder operation from four hours to one hour. This proposal was based on a concensus within the FAA that ATC capabilities had improved because of improvements in ATC equipment, better communications, and improved ATC procedures, and that this would permit an increase in ATC service to the users of the system while reducing the advance notice burden on pilots. It was felt that with a shorter notice period, ATC could better discern the short term, near term weather and better assess the air traffic situation expected at the time of the proposed nontransponder operation. Weather, staffing, and related factors are more predictable one hour in advance of a flight than they are under the current four hours advance notice requirement. This increased predictability increases the efficiency and quality of the ATC service. At the same time, nontransponder operations, such as local, VFR training, and transient flights, could be conducted with a minimum of notice burden to the user of the ATC system. It would also benefit pilots in that proposed arrival and departure times could be estimated more accurately. To accomplish this change, Notice No. 81-13 proposed to amend § 91.24(c) (3) by substituting "one hour" advance notice for the present "four hours" notice requirement.

Discussion of Comments

Public comments were received from the National Transportation Safety Board (NTSB), Air Transport Association of America (ATA), National Business Aircraft Association (NBAA), Air Line Pilots Association (ALPA), Aircraft Owners and Pilots Association (AOPA), Appalachian Helicopter Pilots Association (AHPA), the State of Oregon Aeronautics Division, and three private citizens. All supported the amendment.

In addition, AOPA and one of the individual commenters proposed an immediate ATC deviation authority. The FAA does not agree. Immediate deviation authority would create the potential for serious radio frequency congestion in higher density traffic areas where transponders are now required for purposes of effective, continuous identification and separation of traffic. In these environments, the no-notice appearance of aircraft without transponders could result in the consumption and competition for valuable time on control frequencies. In each case, time would be spent on initial unanticipated callups to provide aircraft identification, position, altitude, direction, heading, and other information considered pertinent to ATC. If, on the other hand, some advance notice were given, ATC facility management would have enough time to determine likely traffic loads and ATC's capability to absorb nontransponder traffic. Another disadvantage to immediate ATC deviation authority is that it is likely to act as a disincentive for many pilots/operators to purchase and maintain a transponder. This inducement would be contrary to the public interest since an operable transponder is necessary for the efficient movement of air traffic in airspace areas where it is required. The NTSB shares this concern, stating it opposed any reduction below the one hour notice. Going a step further, ATA urged the FAA to require all aircraft in the ATC system to have transponders. The ATA suggestion is beyond the scope of the notice in this rulemaking action.

In another comment, AHPA recommended that § 91.24(b) be changed so that helicopter operations in a TCA below 700 feet would be exempt from the transponder requirement without limitation. At present helicopters may be flown in a TCA below 1,000 feet as long as the operator consummates a letter of agreement with the controlling ATC facility. The AHPA comment, submitted in substance during a previous regulatory review on helicopters, is beyond the scope of this notice.

Impact Assessment

This regulatory action is relieving in nature. No formal cost-benefit analysis was completed with respect to the change. However, through a preliminary assessment of costs and economic impact, the FAA has determined that there are no costs associated with this change, and that reducing the advance notice that operators of aircraft without transponders are required to give to ATC in order to operate in certain controlled airspace will result in a minimal/positive economic impact.

Adoption of the Amendment

Accordingly, § 91.24(c) (3) of Part 91 of the Federal Aviation Regulations (14 CFR 91.24(c) (3)) is amended effective April 11, 1983.

(Sections 307(a), 313(a) and 601, Federal Aviation Act of 1958, as amended (49 U.S.C. 1348(a), 1354(a) and 1421); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE: This amendment reduces the burden on pilots operating aircraft without transponders by permitting pilots to fly into certain controlled airspace on less than four hour notice, and permits more efficient functioning of the ATC system. The expected economic impact is minimal, involves no costs, and will have only positive impacts. Therefore, this action does not warrant preparation of a regulatory evaluation, and the FAA has determined that it is not a major rule under Executive Order 12291 or a significant regulation under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, for the reasons discussed above I certify that, under the criteria of the Regulatory Flexibility Act, this regulatory action will not have a significant economic impact on a substantial number of small entities.

Amendment 91-183

Transport Category Airplanes; Shoulder Harness

Adopted: March 15, 1983 **Effective: March 31, 1983**

(Published in 48 FR 13662, March 31, 1983)

SUMMARY: This amendment to the Federal Aviation Regulation brings the shoulder harness rule contained in Part 91 in harmony with Part 121 and, accordingly, relieves transport category airplanes certificated before January 1, 1958, from being required to be equipped with shoulder harness installations at each flight-deck station unless required by the type certification rules under which they were manufactured.

Comments must be received on or before May 2, 1983.

ADDRESSES: Send comments on the rule in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-204), Docket No. 23584, 800 Independence Avenue, SW., Washington, D.C. 20591; or deliver comments in duplicate to: FAA Rules Docket, Room 916, 800 Independence Avenue, SW., Washington, D.C. Comments may be examined in the Rules Docket weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m.

FOR FURTHER INFORMATION CONTACT: Frank M. Jamison, Jr., Project Development Branch, AFO-850, General Aviation and Commercial Division, Office of Flight Operations, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; Telephone (202) 426-8150.

SUPPLEMENTARY INFORMATION:

Background

On February 4, 1980, the FAA published Airworthiness Review Program Amendment No, 8, Cabin Safety and Flight Attendant Amendments (45 FR 7750), which amended 14 CFR Parts 23, 25, 27, 29, 91, and 121 to update and improve airworthiness standards applicable to cabin safety and flight attendants. Amendment 91-162 added § 91.200, which prescribed a combined safety belt and shoulder harness requirement for transport category airplanes operating under Subpart D of Part 91. Amendment 91-162 required compliance no later than March 6, 1981; however, § 91.200(b) contained a provision whereby an operator could obtain an extension of the compliance date, but not beyond March 6, 1982, if the operator showed that required hardware was unavailable and submitted an acceptable schedule for compliance which indicated that compliance would be achieved at the earliest practicable date.

Under the provisions of § 91.200(b), the Director of Flight Operations issued 373 letters extending the compliance date to March 6, 1982. The letters were in response to requests by operators who were unable to obtain the necessary hardware because of its unavailability.

Based upon an analysis of the number of operators who continued to be unable to obtain the required hardware, the FAA recognized that a substantial number would be unable to meet the compliance date of March 6, 1982. It became evident that enforcement of the rule, as originally adopted, would cause those operators to suffer a severe and costly penalty because their airplanes would have to be grounded until such time as they could comply with the rule.

The FAA inspection and surveillance staff reviewed the operators' requests and found that, despite the fact that the large majority of operators had been successful in obtaining and installing appropriate equipment, there remained a smaller number of operators who had been unable to do so. In general, this resulted from inadequate equipment-manufacturer production rates and resulting equipment supply shortages. In reviewing this situation. FAA found that, with few exceptions, sufficient time to correct these problems would result if this amendment was adopted and compliance with the equipment installation requirements of § 91.200 would then be achievable without an undue burden to society.

Accordingly, the FAA changed the compliance date specified in § 91.200(b) from March 6, 1982, to March 6, 1983, to allow affected operators additional time to obtain and install the required hardware. Under the amended § 91.200(b), 143 letters were issued extending the compliance date to March 6, 1983.

Amendment 121-177 (47 FR 10515; March 11, 1982) amended § 121.311(e) to exclude transport category airplanes that were type certificated before January 1, 1958, from the requirement for a combined safety belt and shoulder harness at each flight-deck station provided the type certification rules for those aircraft did not specify shoulder harness requirements. This amendment had the effect of creating a stricter requirement in Part 91 than in Part 121.

Need for This Regulatory Change

The FAA has received and continues to receive petitions for exemption from § 91.200 from operators of transport category airplanes type certificated prior to January 1, 1958. While the FAA recognizes that some manufacturers of these older types of airplanes are no longer in business as aircraft manufacturers, the need for shoulder harnesses, especially at each pilot position, is apparent regardless of the type certification date of the airplane. The FAA will study the shoulder harness installation problem for each airplane type certificated prior to January 1, 1958, and may institute additional rulemaking with respect to shoulder harness requirements for flight crewmembers of transport category airplanes type certificated before January 1, 1958.

This rulemaking is intended as an interim measure to provide relief for those operators of airplanes type certificated prior to January 1, 1958, while the FAA conducts a study of those airplanes to establish the facts regarding feasibility of retrofit for installation of combined safety belts and shoulder harnesses at flight-deck stations. This amendment also will achieve a consistency with the shoulder harness requirements of § 121.311(e) of the FAR and thus eliminate a regulatory anomaly. Not adopting this amendment would impose substantial economic losses and inconvenience on the affected operators whose airplanes would have to be grounded.

Description of the Amendment

Accordingly, the FAA amends § 91.200 to except transport category airplanes type certificated prior to January 1, 1958, from the requirement for a combined safety belt and shoulder harness that meets § 25.785 at each flight-deck station. In addition, similar to the rule change made in § 121.311, it is provided that shoulder harnesses and combined safety belt and shoulder harnesses approved and installed prior to March 6, 1980, may continue to be used. The amendment also provides that safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

The FAA is not aware of any problem with complying with the requirement for the combined safety belt and shoulder harness at each flight attendant's seat in the passenger compartment. Therefore, that requirement remains within § 91.200 as revised paragraph (b).

Need for Immediate Adoption

There is an urgent need to harmonize the requirement of Part 91 with that of Part 121 and avoid placing operators of the affected airplanes in the position of having to ground their equipment and incur devastating financial losses. Accordingly, I find that notice and public procedure are impracticable and contrary to the public interest. In addition, since this amendment relieves a restriction, I find that good cause exists for making this amendment effective in less than 30 days. Further, since the intent of the amendment is to afford such relief to all affected operators after March 6, 1983, I find that good cause exists for applying this amendment retroactively to March 6, 1983. However, interested persons are invited to submit such comments as they may desire regarding this amendment. Communications should identify the docket number and be submitted in duplicate to the address specified above. All communications received on or before May 2, 1983, will be considered by the Administrator, and this amendment may be changed in light of the comments received. All comments received will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested parties.

ADOPTION OF THE AMENDMENT

PART 91—GENERAL OPERATING AND FLIGHT RULES

Accordingly, § 91.200 of the Federal Aviation Regulations (14 CFR 91.200) is amended effective March 31, 1983.

(Secs. 313, 314, 601, and 603 through 605, Federal Aviation Act of 1958 (49 U.S.C. 1354, 1355, 1421, and 1423 through 1425); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)))

NOTE: This amendment effects a logical regulatory relationship between two provisions in the Federal Aviation Regulations and relieves certain operators from a situation which may involve impossibility of compliance for certain airplanes. Accordingly, the Federal Aviation Administration has determined that this amendment is not a major rule under Executive Order 12291 or a significant regulation under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). For the same reasons, I also find that the economic impact is so minimal that no regulatory evaluation is necessary.

Amendment 91-184

Flight Limitations in the Proximity of Space Flight Operations

Adopted: September 25, 1984 **Effective: September 27, 1984**

(Published in 49 FR 38933, October 2, 1984)

SUMMARY: This rule clarifies the applicability of the regualtion which allows the Administrator to prohibit the operation of aircraft in a space flight recovery area. The amendment eliminates the reference to "recovery" to clarify that the regulation applies to space launch as well as recovery operations. The amendment makes no substantive changes to existing law.

Comments concerning provisions of this regulation must be submitted by November 1, 1984.

ADDRESSES: Send comments on the rule in duplicate to the Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-204), Docket No. 24258, 800 Independence Avenue, S.W., Washington, D.C. 20591. Comments may be examined in the Rules Docket, weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. William C. Davis, Office of Air Traffic Operations, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone (202) 426-8783.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in this regulatory action by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions. Communications should identify the regulatory docket number and be submitted in duplicate to the above specified address. All communications received on or before the closing date for comments will be considered by the Administrator. Commenters who wish the FAA to acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is written: "Comments to Docket No. 24258." The postcard will be date/time stamped and returned to the commenter. The provisions in this rule may be changed in the light of comments received. All comments submitted will be available, both before and after closing date for the comments, in the Rules Docket for examination by interested persons. A report summarizing substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Availability of Document

Any person may obtain a copy of this document by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attn: Public Information Center, APA-430, 800 Independence Avenue, S.W., Washington D.C. 20591, or by calling (202) 426-8058. Communications must identify the docket number.

BACKGROUND

On March 18, 1965, the Administrator issued Special Federal Aviation Regulation (SFAR) No. 16 (31 FR 3706), that prohibited the flight of nonparticipating aircraft in recovery areas of the Gemini series of operations. With the completion of the Gemini flights, and after the National Aeronautics and Space Administration (NASA) stated that future space operations would require the same protection as had been provided for the Gemini project, the FAA issued Amendment No. 91-45 (32 FR 14312) on October 11, 1967. That amendment codified the provisions of SFAR No. 16 as § 91.102 of the Federal Aviation Regulations (14 CFR 91).

NEED FOR ADMENDMENT

Existing § 91.102 prohibits the operation of aircraft, with certain exceptions, within areas designated by a Notice to Airmen (NOTAM) for "space flight recovery operations." It is the FAA's interpretation of the quoted provision that the term "recovery" applies not only to end-of-flight recovery, but also to the area designated for emergency recovery during the launch phase of the flight. In the preamble to Amendment No. 91-45, the FAA stated that flight prohibitions may remain in effect during the entire space flight so that the recovery area would be available in the event of an emergency. Emergency recovery operations are an integral part of any space launch operation. For example, if an emergency occurs immediately after a space flight launch from Kennedy Space Center, the space vehicle may have to be recovered offshore in international waters. An emergency recovery at the NASA Shuttle Landing Facility Airport becomes possible after the vehicle reaches a height that would allow it to glide to a landing. Both eventualities require the airspace around the launch site be protected from intruding aircraft during the launch phase. However, the existing reference in § 91.102 to "recovery operations" may not constitute adequate notice to pilots that the §91.102 airspace restrictions apply during the launch phase of the flight. Since space shuttle operations began, there have been several aircraft incursions into the recovery area. During the space shuttle launch in September 1984, aircraft approached within 5 miles of the launch site, resulting in a launch delay of more than 6 minutes. Similar incidents in the future which might occur due to a misunderstanding of the applicability of § 91.102 to the launch phases of space flights, could result in costly delays of shuttle operations and in potentially hazardous situations for pilots and space flight crews. Accordingly, the purpose of this action is to remove the potential for misinterpretation by eliminating the reference to "recovery" or any other particular phase of the space flight operation.

NEED FOR IMMEDIATE ADOPTION

Because this regulation involves no substantive change from the FAA interpretation of the existing provisions of § 91.102, and because the amendment will serve to prevent disruption of future space shuttle operations scheduled within the next 2 months, I find that notice and public procedure hereon are not in the public interest and that good cause exists for making the regulation effective immediately.

Because this amendment clarifies the scope of the existing rule, this document involves a rulemaking action which is not a major rule under Executive Order 12291 and is not a significant rule under Department of Transportation Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). Further, for these reasons, I certify that, under the criteria of the Regulatory Flexibility Act, the amendment will not have a significant impact on a substantial number of small entities. In addition, the FAA has determined that the expected impact of this amendment is so minimal that it does not require an evaluation.

AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended by revising § 91.102 effective September 27, 1984.

(Secs. 307 and 313(a), Federal Aviation Act of 1958, as amended (49 U.S.C. §§ 1348, 1354(a)); 49 U.S.C. § 106(g) (Revised, Pub. L. 97-449, January 12, 1983); and 14 CFR 11.45.)

Amendment 91-185

Rotorcraft Regulatory Review Program: Amendment No. 2

Adopted: August 14, 1984 **Effective: December 6, 1984**

(Published in 49 FR 44422, November 6, 1984)

SUMMARY: This rule adopts new airworthiness standards for type certification of normal and transport category rotorcraft. New standards are necessary because of the phenomenal growth of the rotorcraft industry and the recognition by both government and industry that the updated standards are needed. This rule changes those sections of Parts 1, 27, 29, and 91, of the Federal Aviation Regulations which apply to rotorcraft flight characteristics, systems, and equipment.

FOR FURTHER INFORMATION CONTACT: Jim S. Honaker, Regulations Program Management (ASW-111), Aircraft Certification Division, mailing address: P.O. Box 1689, Fort Worth, Texas 76101, or office location at 4400 Blue Mound Road, Fort Worth, Texas 76106, telephone (817) 877-2552.

SUPPLEMENTARY INFORMATION: These amendments are the second in a series of amendments to be issued as a part of the Rotorcraft Regulatory Review Program. The first of the series of amendments of the Rotorcraft Regulatory Review Program addressed applicability, instrument flight rules (IFR) certification and icing certification standards and was published in the *Federal Register* on January 31, 1983 (48 FR 4374).

These amendments are based on Notice of Proposed Rulemaking No. 82-12 published in the *Federal Register* on August 26, 1982 (47 FR 37806). All interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review by the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and reasons for their adoption are the same as those contained in Notice 82-12, and, unless otherwise indicated, the proposals contained in the Notice have been adopted without change.

DISCUSSION OF COMMENTS

The following discussions are keyed to like-numbered proposals in Notice 82-12 and are presented in the same order as the corresponding amendments found in the rules portion of this document.

Proposal 2-1. Three comments were received to this proposal, all of which primarily agreed but raised areas of concern. One commenter recommends deleting the last sentence of the § 1.1 proposed definitions of climbout speed and takeoff safety speed. That sentence, in both definitions, states that these airspeeds are determined from the Rotorcraft Flight Manual. The commenter is correct in that this location of airspeed information is not appropriate in a definition. The location of airspeed information is also inappropriate for a certification applicant that determines these airspeeds by engineering actions which are used to develop the Rotorcraft Flight Manual. Accordingly, the last sentences in these proposed definitions are deleted.

The same commenter and a second commenter suggest that further changes appear necessary to clarify and differentiate between the definitions and abbreviations in Part 1 pertaining to fixed-wing aircraft and helicopters. Such a change, however, was recognized by the commenters as being beyond the scope of the Notice.

A third commenter suggests that, as worded, takeoff safety speed will be applicable to fixed-wing aircraft and a decision on its inclusion should be withheld until fixed-wing operators have commented. All three commenters have some association with fixed-wing aircraft and offered no comments on conflict with aircraft usage. The FAA concludes that the definition is compatible with all aircraft. The definitions of this proposal are adopted with the changes noted.

Proposal 2-2. No comments were received on the proposal to add the definition of V_{TOSS} to § 1.2 except the recommendation for further clarification between rotorcraft and airplane definitions and abbreviations of Part 1 noted in Proposal 2-1. The proposed amendment is adopted without change.

Proposal 2-3. No comments were received on this proposal.

Proposal 2-4. One commenter recommends deleting the phrase "prior to takeoff" from the proposed addition of § 27.45(f) concerning engine power determination. A second commenter made the same recommendation for Proposal 2-33.

Determining engine power available before being committed to flight has long been a problem that helicopter pilots have faced. During normal operations, applying full power results in the helicopter becoming airborne and climbing. Even applying full power to only one engine on a multiengine helicopter will result in it becoming light on the landing gear, essentially flying, or actually airborne if operating at a light weight. Shortly after becoming airborne is not the proper time for the pilot to discover that there is less power available than anticipated.

The first commenter states that the proposed change does not recognize advances in technology which may indicate engine condition to the pilot before takeoff and that a power check before each flight is time-consuming, unnecessary, and economically punishing. The second commenter states that engine characteristics are such that meaningful checks must be completed at or near such [full power] ratings which would probably result in single-engine liftoff.

As noted in the explanation of Proposal 2-33, a preflight power-assurance check procedure is required by special conditions for all current transport category turbine-powered rotorcraft. Compliance typically involves flight manual instructions for partial power checks in addition to specifications for validating limit power during production acceptance and engine maintenance or replacement activities. Similar methods of compliance are suitable under the proposed rule. The FAA recognizes the deficiencies of such a pretakeoff check as stated by the second commenter but considers this procedure significantly safer than having no means to evaluate engine operation.

The second commenter suggests that a system of engine condition monitoring carried out at significantly high power plus a preflight function check would satisfy this requirement. The FAA agrees provided the commenter's meaning of "preflight functional check" is essentially the same as "a means must be provided to permit the pilot to determine prior to takeoff." The proposal does not preclude the use of advanced technology for a system such as automatic monitoring of engine condition with appropriate warnings to the pilot.

A third commenter states that there is a need to simplify procedures and recommends use of a calculator, either mechanical or electronic, as an improvement over charts. Specifying such a means to make a power check would inhibit innovation. The proposed amendment is adopted without change.

Proposal 2-5. The only comment received agrees with the proposal.

Proposal 2-6. One commenter agrees with the proposal to change § 27.79 to permit determination of the height-velocity envelope at the highest weight allowing hovering out-of-ground effect. A second commenter recommends that the second sentence of the proposal be changed for helicopters such that the weight need not exceed the highest weight allowing hovering out-of-ground effect at altitudes above sea level. This commenter states that his proposed change would be in agreement with the change proposed (and subsequently accepted) for § 29.79 in Notice 80-25 (45 FR 83424), the first Notice of this Rotorcraft Regulatory Review Program. However, that Notice states that the height-velocity demonstration weight must be the maximum approved for takeoff and landing but need not exceed the weight allowing hovering out-of-ground effect. The new § 29.79(a)(2) establishes demonstration weights at or near the maximum operating weight. The commenter's suggestion does not establish a minimum demonstration weight, that is, minimum weight does not exceed the highest weight allowing hovering out-of-ground effect. Accordingly, the amendment is adopted without change.

Proposal 2-7. One commenter agrees with the proposal to simplify § 27.141 and add temperature accountability into the flight characteristics requirements. A second commenter questions the need to demonstrate all flight characteristics at all allowable temperatures and requests that the basis for the need be clearly addressed in Advisory Circular 29-2, "Certification of Transport Category Rotorcraft," and in the comparable document that is to be written for Part 27. This information will be included in the advisory circulars. The FAA has found that some advanced technology rotor systems are affected by temperature variations in some areas of stability and control, vibration, and the more well-known rotor blade tip mach number effects. The amendment is adopted as proposed.

Proposal 2-8. Only one comment was received, and that comment agrees with the proposal.

Proposal 2-9. Only one comment was received, and that comment agrees with the proposal.

Proposal 2-10. One comment on the proposed § 27.161 trim control requirements recommends that the control forces must be trimmable only to "approximately zero" rather than "zero." The proposal did not address control force but only adds collective trim control to the present requirement for longitudinal and lateral trim controls. The commenter states that for many years helicopters have operated successfully without "zero" trimming and that the small deviations from zero have been taken care of by small amounts of friction.

The commenter's suggestion is the same as one received for the Rotorcraft Regulatory Review conference (conference Proposal 35) and was discussed in the Appendix to Notice 82-12. The FAA finds that the reasons given in the Appendix to Notice 82-12 for requiring zero trim are still valid.

A second commenter agrees with the proposal, but wants the capability of disabling the trim system at the pilot's option for takeoff, landing, and hovering. This change is beyond the scope of the Notice. The amendment is adopted as proposed.

Proposals 2-11 and 2-12. One commenter recommends deleting proposed paragraphs 27.173(c) and 27.175(d), both of which refer to static longitudinal stability in a hover. The commenter states that hovering is a hands-on flight condition requiring continuous movement of all four controls. The commenter argued that requiring that the pilot's hand be in a certain range of positions does not result in an increased level of safety. The commenter also states that the general paragraph on controllability and maneuverability provides adequate safety requirements.

The proposed changes concerning the hover flight regime serve only to clarify the present rules. Existing stability and control literature shows the unsafe flight conditions resulting from excessive negative stability and the limits of negative stability that allow controlled, but not necessarily acceptable, flight. The FAA agrees that hovering presents special considerations. Deleting the paragraphs, as the commenter suggests, would leave the hover flight condition addressed by the most general of requirements. This could lead to a confusion of interpretations of hover requirements such as including requirements intended only for level forward flight. To meet the positive stability requirements of forward flight during hover would be extremely burdensome, perhaps not even possible.

A second commenter agrees with both proposals as written. These amendments are adopted as proposed.

Proposal 2-13. One commenter agrees with the proposal to add a new § 27.177 requiring positive static directional stability. A second commenter recommends deleting the last sentence, which requires sufficient pilot cues of sideslip to assure safe operations, because it is unnecessary and introduces a qualitative issue which could lead to misinterpretation and misapplication of the intended rule.

While the FAA does not agree that the last sentence should be deleted, it has been changed to read "Sufficient cues must accompany sideslip to alert the pilot when approaching sideslip limits." This will more clearly state the intent of the rule. The alternative to this somewhat broad statement would be to identify all possible cues which would result in unnecessary complexity.

A third commenter recommends that instead of requiring positive static directional stability, the rule should only require that there be no negative static directional stability perceptible to the pilot through the directional pedals. Positive directional stability is necessary to ensure minimum satisfactory stability and control characteristics and to inhibit exceeding sideslip limits. This suggestion could result in considerable misinterpretation and misapplication as to how much negative stability is perceptible to which pilot.

The third commenter also states that the proposed requirement to demonstrate static directional stability will increase certification test time by 5 hours. Review by the FAA indicates that the wording of the proposal, with reference to the conditions for demonstration of static longitudinal stability, could be misinterpreted to require excessive (5 hours) testing. The amendment is reworded to specify testing at the trim airspeeds used to demonstrate static longitudinal stability in climb and level flight (and in autorotation for Part 29) tests. This will permit the directional stability tests to be accomplished on the same flights as static longitudinal stability tests with an increase of test time of less than 1 hour.

The amendment is adopted with the noted changes to clarify the intent of the proposal.

Proposal 2-14. One commenter agrees with the proposal to add a new § 27.610 specifying lightning protection requirements. A second commenter suggests limiting the lightning protection requirement to those rotorcraft being certificated for IFR flight. This commenter states that in 13 million VFR flight hours of one manufacturer's fleet, only one non-severe lightning strike was reported and that a statement in the Rotorcraft Flight Manual to avoid flying near storms or vertical clouds would be sufficient. This commenter also states that meeting the requirement would be very expensive and complex but he fails to provide any details or other indication of cost or magnitude. Research by numerous technical groups studying lightning has disclosed that strikes occur in both VFR and IFR conditions. These studies have also shown that unless thunderstorm turbulence, hail, and rain are circumnavigated by well over 25 miles, an occasional lightning strike will occur. There are many reports of lightning strikes occurring to aircraft operating between clouds or in areas where no thunderstorms were forecast, and a few pilots have reported "bolts from the blue."

The FAA is aware of one U.S. manufactured helicopter series that has been struck by lightning four times since certification in 1980. This particular helicopter series is very limited in number, but most operations have been in a more than normally hostile weather environment. Only minor damage resulted from the lightning strikes because the helicopter manufacturer voluntarily followed good design practices for lightning protection although the applicable airworthiness regulation had no specific lightning protection requirement. In a recent study including in-flight strike data collected over an eight year period, 36 percent of the recorded strikes occurred below 10,000 feet mean sea level (MSL) altitude, and 87 percent of the recorded strikes occurred below 16,000 feet MSL. Since rotorcraft are not pressurized, are rarely equipped with oxygen, and operation at the higher altitudes is inefficient, most operations occur below 10,000 feet MSL and very rarely above 16,000 feet MSL.

The proposed change uses the same words as those used for large airplanes in Part 25. Many airplanes have been struck by lightning, but only a very few have resulted in catastrophic failure. Since the wording of the proposed change is general in nature and there are no specific provisions uniquely applicable to fixed-wing aircraft, the FAA concludes extension of the standard to rotorcraft will provide rotorcraft occupants the same degree of safety from lightning as provided fixed-wing aircraft occupants.

The FAA forecasts that by the year 2000 the rotorcraft fleet size will nearly double to approximately 20,000 units. In addition, the trend is going towards more complex, fully instrument flight equipped rotorcraft that will be conducting more operations in adverse weather conditions, including icing, where lightning strikes are more likely to occur.

Application of new technology to rotorcraft is also a factor in consideration of the need for protection against lightning. There is an increasing trend toward the use of composite materials in the rotorcraft structure. Since these materials are nonconductive, additional precautions must be taken to assure proper lightning current paths to retain structural integrity and allow protection of installed systems. Programmable, microprocessor-based digital equipment is rapidly being applied in critical functions such as electronic fuel controls and Electronic Flight Instrument Systems (EFIS). The EFIS systems have complete instrument panel displays that are of the cathode ray type, driven by digital computers. Many present generation automatic flight control systems are digital based, and further application of digital computer technology to critical flight controls is anticipated. If proper design precautions are not taken in the basic rotorcraft and system installations, computer memories can be lost, programs can be upset, or complete computer destruction can occur with a lightning strike.

Although Notice 82-12 presented no economic estimate for this change and specifically requested such data, none was received—except the second commenter's statement that it would be "very expensive." However, as noted in Table 1 of the economic summary, an FAA, NASA, and DOD task force is engaged in a lightning research effort. The FAA plans to pass the results of that effort on to the public via advisory circular material, thus minimizing each applicant's lightning research costs.

In view of the increased criticality of structure and systems subject to lightning damage, plus the increase in fleet size and operations in environments where lightning strikes frequently occur, the FAA finds it necessary to provide these standards. Therefore the amendment is adopted as proposed.

Proposal 2-15. One commenter suggests that "any failure" as used in proposed § 27.672(a) be clarified to exclude mechanical failures. The FAA disagrees as §§ 27.695(c) and 29.695(c) require that for power-boost and power-operated control systems, "The failure of mechanical parts (such as piston rods and links), and the jamming of the power cylinders, must be considered unless they are extremely improbable."

FAA review noted that the reference to § 29.671 should be § 27.671; this is corrected. The proposed amendment is adopted with the corrected reference.

Proposal 2-16. Only one comment was received, and it agrees with this proposal.

Proposals 2-17. One commenter agrees with the proposal to add a new § 27.729 concerning landing gear retracting mechanisms but states that with existing systems where "landing-gear-not-down-warning" is based only on airspeed, there is a problem of continuous warning when operating with Category B external loads at slow airspeeds and with the landing gear retracted. The proposal requires a manual shutoff capability which will enable the crew to silence the aural warning and continue such external-load Category B operations. Several rotorcraft have an airspeed activated system and the FAA has found that this is satisfactory. The amendment is adopted as proposed.

Proposal 2-18. Only one comment was received and it agrees with this proposal.

Proposal 2-19. This is a parallel proposal to Proposal 2-52. See that proposal for comments, analysis, and changes.

Proposal 2-20. This proposal changes the title of § 27.785 and significantly increases the detail of seats, berths, safety belts, and harnesses requirements. One commenter suggests that paragraph (b) be replaced by a requirement that each occupant must be protected from head and upper torso injury by a safety belt and shoulder harness. This commenter states that the shoulder harness increases an occupant's tolerance to vertical impact loads without injury from about 4g to 25g. However, no cost data for this requirement were submitted and the FAA estimates that the cost would be significant. The FAA is participating in several studies and reviews of crash results and requirements.

The proposed amendment aligns the rule with airplane rules and the limited conclusions available to date. It would be inappropriate to accept the suggested change until more data, especially cost, are available from these or other studies.

A second commenter suggests that a third option be listed in paragraph (b) (2) indicating that a safety belt plus a shoulder harness is acceptable and that the proposed (b) (2) (ii) be prefaced by the phrase, "for aft-facing seats."

The latter portion of this suggestion would appear to eliminate consideration for side-facing seats, while the proposal, without the "aft-facing seat" phrase, was intended to include seats with any orientation.

The first portion of this commenter's suggestion points out that a combination of safety belt and shoulder harness is an acceptable method. This proposed change helps clarify the amendment and is included in paragraph (b) (2).

A third commenter notes that the National Transportation Safety Board (NTSB) has recommended for many years that shoulder harnesses be installed in light airplanes at all seat locations and sees no difference in the basic survivability issues between airplanes and rotorcraft. This commenter concludes that sufficient data, including U.S. Army crashworthiness data dating back to 1960, are available to justify a requirement for a shoulder harness at each seat location in normal category rotorcraft. A fourth commenter states that every effort should be made to take advantage of the research and development conducted during the last several years to require built-in crashworthiness. As noted, most of the crashworthiness studies have been accomplished by and for the military, which has different design standards than civil rotorcraft. Using only military data to establish civil requirements could very well result in requirements that would be excessively and possibly prohibitively expensive in initial and operating costs. Further changes will be deferred until completion of the FAA crashworthiness program. The amendment is adopted with the one change discussed.

Proposal 2-21. Only one comment was received. It agrees with this proposal.

Proposal 2-22. One commenter agrees with the proposal to relax equipment, systems, and installation design requirements for single engine rotorcraft and to require consideration of lightning strikes on rotorcraft.

Two additional commenters suggest that proposed § 27.1309(d) include a reference to § 27.610, to agree with the § 29.1309. This reference is added.

A fourth commenter says he does not understand the different criteria based on the number of engines. In the present rules, the requirements in § 27.1309(a) and (b) are identical to § 29.1309(a) and (b), which is contrary to the concept of less strict requirements in Part 27, where applicable. The proposed change relieves the requirements of Part 27 by considering only probable failures and by recognizing the different operational capabilities and levels of probable safety between single-engine and multiengine rotorcraft after a probable failure. The proposed amendment is adopted with the reference to § 27.610 added.

Proposal 2-23. This proposal adds a new § 27.1329 describing automatic pilot system requirements. One comment suggests that "system" be replaced with "automatic pilot" to be consistent with § 29.1329(e). This will also be consistent with §§ 23.1329(e) and 25.1329(g). The FAA concurs and the proposal is adopted with this change.

Proposal 2-24. Only one comment was received and that comment agrees with this proposal.

Proposal 2-25. Only one comment was received and that comment agrees with the proposal.

Proposal 2-26. One commenter recommends adding the phrase "except for the weight demonstrated according to § 27.79" to indicate more clearly that height-velocity data are in no way limiting to the proposed change to delete § 27.1519(b) and the (a) designation of § 27.1519(a).

The explanation in the Notice gives considerable detail about changes being made to the rule to clarify that height-velocity data are not limitations. Also similar wording has been in effect for many years without causing problems. Therefore, the commenter's exception phrase is not considered necessary. A second commenter agrees with the proposal. The amendment is adopted as proposed.

Proposal 2-27. Only one comment was received and it agrees with this proposal.

Proposal 2-28. One commenter agrees with the proposal concerning § 27.1555, Control Markings. A second commenter suggests that proposed paragraph (e), which would require that the maximum landing gear operating speed be plainly marked close to the landing gear control, be deleted as unnecessary. This commenter states that all pilots know landing gear operating speeds without spoonfeeding them with unwarranted placards and instructions. The FAA does not agree.

Retractable landing gear is still not common in small helicopters. A pilot that flies rotorcraft with and without retractable gear may know and review the operating speeds but landing gear speeds are not speeds that stand out during a review. Therefore, a placard reminder seems prudent.

The FAA has reviewed the proposal to require the marking to be located close to the landing gear control. While displaying the speed near the control has several advantages, many pilots prefer using one placard for several airspeed limits. A one-placard concept allows placing this information where it is consolidated and clearly available to the pilot without disrupting good instrument or control placement. Therefore, this proposal, as adopted, requires the maximum landing gear operating speed to be displayed in clear view of the pilot to permit the one-placard concept.

Proposals 2-29. One commenter agrees with the proposal to shorten the limitation placard wording required by § 27.1559. A second commenter suggests that the required placard state, "Refer to the approved Rotorcraft Flight Manual for kinds of approved operations." According to the commenter, this would relieve the requirement for a drawing change, a new decal, and FAA approval of these each time there is a change in approved operations.

Normally, this would be a very minor part of the effort to obtain FAA approval of a different kind of operation. One manufacturer sends Rotorcraft Flight Manual Supplements to all owners when a modification kit is FAA approved; however, each rotorcraft is not approved for the new kind of operation until the kit is installed, so a pilot looking at one of these Rotorcraft Flight Manuals still would not know if the helicopter is approved for that type operation. The limitation placard as proposed is the most positive method of readily identifying the kinds of operations that are approved for a specific rotorcraft. The amendment is adopted as proposed.

Proposal 2-30. One commenter agrees with the proposal. A second commenter recommends that the proposed § 27.1585(a) (1) and (2) and the lead-in sentence to these subdivisions be deleted. This commenter states that the phrase "other information" in paragraph (a), concerning operating procedures, adequately covers the requirement to identify takeoff and landing surfaces used in the tests and the appropriate airspeeds. The commenter states that the requirement to identify takeoff and landing surface and associated airspeeds is not the only type of "other information" and should be contained in guidance information rather than the rule. While the kind of takeoff and landing surface and associated airspeeds are not the only type of "other information," these are important and specific enough to be included in the rule as a requirement for all rotorcraft. The amendment is adopted as proposed.

Proposal 2-31. One commenter agrees with the proposal. A second commenter suggests statements in § 27.1587 to prevent including performance information which exceeds operating limits and a requirement to show the maximum demonstrated wind for starting and stopping the rotors. This commenter also suggests that the minimum demonstration wind for starting and stopping the rotors be at least 17 knots to agree with controllability and maneuverability requirements. These suggestions were originally conference Proposal 144 and were removed from further consideration as noted in the Appendix of Notice 82-12 as being an unnecessary burden for small rotorcraft. The rationale in the Appendix explanation is still valid. The amendment is adopted as proposed.

Proposal 2-32. No comments were received on this proposal.

Proposal 2-33. Two commenters suggest that the word "limiting" be deleted from the proposed § 29.45(c) (2) as it related to power absorbed by the accessories and services. The second of these commenters recommends that "and approved" be added to the end of this proposal. Both commenters state that including the word "limiting" will cause confusion since the intent of the change is to allow power determination with the accessories at a value less than the limit value. As an example, an applicant may select a generator that has a "limit" rating of 300 amperes but the maximum load possible for this specific rotorcraft would be 200 amperes; therefore, the power absorbed by this generator load would be based on 200 rather than 300 amperes. Adding equipment to this rotorcraft that could impose a load greater than the 200 amperes would require meeting all the certification requirements, including power determination, as if a larger generator were installed. Both commenters suggest that guidance material should be used to clarify power determination. The FAA agrees with these comments and § 29.45(c) (2) is changed by deleting "limiting" and adding "and approved".

The same two commenters also recommend that the phrase "prior to takeoff" be deleted in the proposed § 29.45(f). A third commenter suggests simplifying the procedure with a mechanical or electronic computer. The FAA's response to these comments is contained in the discussion of Proposal 2-4. This portion of the amendment is adopted as proposed.

Proposal 2-34. One commenter agrees with the proposal. A second commenter notes that as the proposal is worded, a critical decision point (CDP) and acceleration to V_{TOSS} below 35 feet or a descent from the CDP to below 35 feet while accelerating to V_{TOSS} would not be permitted. This is not the intent of the proposal. This commenter suggests the wording ". . . takeoff safety speed and a height of 35 feet above the ground or greater and the climbout must be made . . . ." This wording corrects the proposal to that intended and § 29.59 is revised accordingly.

Proposals 2-35 and 2-36. Only one commenter responded to these proposals, and his comments agree with both proposals.

Proposal 2-37. The comments offered on Proposal 2-7 were also provided on the proposal to add temperature considerations to § 29.141. See explanation for Proposal 2-7. The amendment is adopted as proposed.

Proposal 2-38. Only one comment was received, and it agrees with this proposal.

Proposal 2-39. Only one comment was received and it agrees with the proposal.

Proposal 2-40. One commenter suggests that a directional trim requirement be added to § 29.161. As stated in Proposal 2-10 explanation, directional trim was considered and deemed not required. The commenter does not present justification that had not been previously considered. The commenter also suggests requiring trimming of collective forces to zero in a hover. This was also considered and, as noted in Notice 82-12 (Proposal 2-10), hovering flight is considered a hands-on condition for which a trim requirement is not warranted.

The same commenter further suggests that cyclic and directional control forces of zero in a hover are not required, but some maximum value, such as 5 pounds, should be required for each axis. This is beyond the scope of the Notice.

A second commenter suggests requiring the capability to disarm the trim system. This also is beyond the scope of the Notice. The amendment is adopted as proposed.

Proposals 2-41 and 2-42. Both of these proposals concern static longitudinal stability in a hover as addressed in § 29.173 and § 29.175. One commenter agrees with both. A second commenter had the same comments as for Proposals 2-11 and 2-12, proposals for comparable requirements for Part 27. Refer to Proposals 2-11 and 2-12 for explanation. In Proposal 2-41, reference to § 27.175(a) and (d) is corrected to § 29.175(a) and (d). The amendment is adopted with the noted corrections.

Proposal 2-43. The same comments as for Proposal 2-13 were received for this proposal adding static directional stability requirements in a new § 29.177. See Proposal 2-13 for explanation; the same changes are made and the amendment adopted.

Proposal 2-44. One commenter agrees with the proposal for a new § 29.181 concerning dynamic stability for Category A rotorcraft. A second commenter suggests deleting the entire proposal because the FAA's claims are incorrect when stating that all recently certificated models have met this dynamic stability requirement and that it is less stringent than the fixed-wing requirement. This commenter states that some recently certificated rotorcraft may possess positive damping but most do not comply throughout the approved operating envelope. To meet this requirement, according to this commenter, some degree of added stability augmentation would be required at a significant increase in cost and complexity.

The proposal explanation includes considerable detail as to why this dynamic stability requirement is for Category A rotorcraft only, how it relates to the Category A concept, and how it is necessary as a backup standard for the Category A IFR stability augmentation failure condition. Recently certificated Category A rotorcraft have met this standard at airspeeds above climb speed which is the proposed requirement. All recently certificated Category A rotorcraft may not have met this standard throughout their approved operating envelope as this commenter incorrectly implies the requirement to be.

In comparing the proposed dynamic stability requirements with those of fixed-wing airplanes, this second commenter states that following a stability augmentation failure, § 25.672 requires an airplane to meet only the controllability and maneuverability standards, not the stability or other flight characteristics standards, while the proposed IFR requirements for Part 29 (Notice 80-25 [45 FR 83424; December 18, 1980], which have been adopted without change in this area) include the requirement to meet all the flight characteristics of Subpart B of Part 29. This difference in the requirements between Part 25 and Part 29 results in airplanes not being required to comply with the dynamic stability standards after a stability augmentation system failure, while including this proposal in the Subpart B of Part 29 will require the Category A rotorcraft to continue to meet the standard after a failure when seeking IFR certification. The commenter is correct in that for the IFR failure case, not only is the specific standard for dynamic stability more strict but flight characteristics standards, in general, are more strict. Justifications for the Part 29 IFR requirements are contained in Notice 80-25 and in the preamble of the final rule (48 FR 4374; January 31, 1983). However, Notice 82-12 proposes a new § 29.672 which reads essentially the same as § 25.672; so for the Part 29 VFR case, a stability augmentation system failure does not increase the standard compared to Part 25. For VFR certification under Part 29, the proposed requirement for only positive damping is less stringent than the heavily damped requirement in Part 25. Accordingly, the amendment is adopted as proposed.

Proposal 2-45. This proposal establishes lightning protection requirements in a new § 29.610. See Proposal 2-14 for comments and explanation. The amendment is adopted as proposed.

Proposal 2-46. One commenter agrees with the proposal to add a new § 29.671(c), stating that it "could add appreciably to the cost of manufacture and maintenance; however, . . . the cost may be justified." This commenter also notes that future "fly-by-wire" helicopters will require ground testing such as proposed.

A second commenter suggests the proposal be deleted stating that it would not fulfill the objectives desired by the FAA, that control interference and rigging checks cannot be conducted on the flight line, and that the quality of maintenance is not relevant to airworthiness regulatory action. It is likely that only significant control interference or misrigging would be discovered on a preflight check and these should have been detected on maintenance inspections; however, foreign objects in the control system and some partial failures could be detected. The quality of maintenance may not be relevant to type certification, but affording the pilot the capability to assure (within limits) that the aircraft is airworthy certainly is relevant. The recent trend towards use of composite rotor hubs with fewer hinges further restricts the allowable control inputs that can be made with the rotors turning and the rotorcraft on the ground. Therefore, unless some other alternative is provided, the pilot will have even less capability to determine airworthiness.

The second commenter further reviews the 13 accidents cited in the Notice where it was stated that three might have been prevented by a method to check full control action before takeoff. This commenter states that none of these accidents would have been prevented by the proposal. This commenter cites one accident that occurred 3 to 4 miles from the departure point, and concludes that the proposed preflight check would not have been of merit. The same conclusion is reached in three other accidents where there was some period of flight before an accident. The FAA does not concur that a period of flight before an accident occurs proves that the proposed check is invalid. The critical control condition may not have been encountered until that point in the flight. It also should be noted that the six types of helicopters involved in these accidents were certificated in 1952, 1956, 1961, 1968, 1970, and 1976. This commenter concludes with the statement, "Thus, it appears that from Part 29 helicopter accident history, there is no justification to incorporate this NPRM." As explained in the Notice, a few accidents "might" have been prevented. The available data are not sufficient for a positive conclusion either way. But there has been a sufficient number of control system failures and incidents to clearly indicate a problem area. In view of the catastrophic effects of a failure and the increasing complexity of control systems, improved preflight check capability is appropriate. Accordingly, the amendment is adopted as proposed.

Proposal 2-47. This is a parallel proposal to that contained in 2-15. See that proposal for explanation and analysis. A second commenter noted the typographical error that refers to § 29.67 which should be § 29.671; this is corrected and the amendment is adopted.

Proposal 2-48. Only one comment was received, and it agreed with the proposal.

Proposal 2-49. One commenter agrees with the proposal to revise § 29.729(f) and add a new § 29.729(g), but references his comment on Proposal 2-17. See the explanation for that proposal. The amendment is adopted as proposed.

Proposal 2-50. Only one comment was received, and it agrees with the proposal.

Proposal 2-51. One commenter agrees with the proposed change to § 29.771(b) to require consistency between pilot stations and states that the requirement should apply to Part 27 as well. This is beyond the scope of the Notice. The amendment is adopted as proposed.

Proposal 2-52. One commenter agrees with the proposal to add a new § 29.779. A second commenter suggests that paragraph (a) should be worded, "Primary flight controls must operate . . ." stating that Proposal 2-48 defines primary controls as including the collective. A third commenter makes this same suggestion and adds a paragraph to state that other controls must operate forward or up to increase the related controlled parameter as it is related to the rotorcraft axis.

Including the word "primary" would exclude consideration of secondary controls. The third commenter's suggested paragraph would cover only a limited number of considerations that are best covered in guidance material.

A fourth commenter suggests that proposed paragraph (c) state that the normal landing gear control operate downward rather than just landing gear control, since emergency landing gear controls may require different actions. This suggestion is accepted and the amendment is adopted with this change.

Proposal 2-53. See explanation for Proposal 2-20. This amendment is adopted with the same change as identified for Proposal 2-20.

Proposal 2-54. No comments were received on the proposal to delete paragraphs (f) and (g) of § 29.811 and redesignate the remaining paragraphs. The proposal is adopted without change.

Proposal 2-55. One commenter agrees with the proposal. The FAA notes that the proposal was not clear in allowing the emergency lighting system to share common sources of illumination (bulbs) with the normal cabin lighting system provided the power supplies are independent. Therefore, § 29.812(a) is revised as follows: "(a) A source of light with its power supply independent of the main lighting system must be installed to . . . ."

A second commenter suggests that the cockpit control device in proposed § 29.812(b) could have either "off," "on," and "armed" positions or "off" and a common "on/armed" positions. The control device in the cockpit needs an "on" position (sometimes referred to as "test") to allow the crew to preflight check the emergency lights and to turn on the emergency lights when the normal rotorcraft power is not interrupted. The FAA agrees that the wording of this paragraph could be improved; therefore, the second sentence of § 29.812(b) is revised as follows: "The cockpit control device must have an 'on,' 'off,' and 'armed' position so that when turned on at the cockpit or passenger compartment station or when armed at the cockpit station, the emergency lights will either illuminate or remain illuminated upon interruption of the rotorcraft's normal electric power."

A third commenter suggests that the exterior emergency lighting in proposed § 29.812(c) could be provided by internal or external sources with intensity measurements made with the normal exits open. The FAA concurs except the measurements would be made with only the emergency exits open. Therefore, the following is added: "The exterior emergency lighting may be provided by either interior or exterior sources with light intensity measurements made with the emergency exits open."

Further FAA review notes that the method of activating the exterior lighting in § 29.812(c) is not stated. To correct this, proposed paragraph (c) will be reidentified as paragraph (b) and proposed paragraph (b) reidentified as paragraph (c). The first sentence of new paragraph (c) is revised to read: "Each light required by paragraph (a) or (b) of this section . . . ." The proposed amendment is adopted with the noted changes.

Proposal 2-56. Only one comment was received, and it agrees with the proposal.

Proposal 2-57. One commenter agrees with the proposal to add the requirement for a maximum allowable airspeed indicator and warning system for certain Category A rotorcraft in § 29.1303. A second commenter suggests that a radar altimeter should be mandatory for Part 29 helicopters and there should be criteria to establish maximum allowable vibration; these suggestions are beyond the scope of the Notice.

A third commenter states that V_{NE} is defined as the never-exceed speed and that structural substantiations do not cover any intentional operation above V_{NE}, so the warning should operate at V_{NE} and above (with up to 5 knots below V_{NE} for production tolerance). This commenter suggests that establishing a normal operating speed limit, V_{NO}, below V_{NE} would solve the problem of nuisance operation of the warning at, or near, the allowable speed.

A fourth commenter suggests deleting the proposed change, stating that airspeeds greater than V_{NE} (up to at least 1.1 V_{NE}) are already considered in substantiating the structural adequacy and flight characteristics of the rotorcraft. This commenter further states that the added cost, weight, and complexity are not warranted by service experience, and questions whether a single system would suffice. In support of the question, this commenter explains the complexity in accounting for factors which can affect V_{NE}, such as power-on vs. power-off flight, gross weight, rotor speed, pressure altitude, and outside air temperature. This commenter leads the FAA to conclude that if it is this complex to determine V_{NE} (and, in fact, it is), then there is all the more reason to provide the pilot some assistance. As to the differences between the third and fourth commenters' interpretation of structural and flight verification above V_{NE}, (to 1.1 V_{NE}), the fourth commenter is correct in that intentional flight above V_{NE} is not permitted but the substantiation analysis and tests required do account for infrequent and inadvertent excursions beyond V_{NE}. Therefore, establishing a warning below V_{NE} is not necessary and requiring the warning to operate 3 knots above V_{NE} is appropriate to allow flight at V_{NE} without nuisance warnings. As rotorcraft have become larger and longer flights scheduled, fuel used has become a significant percentage of gross weight. To establish a

V_{NE} based on maximum gross weight as is presently done precludes more economical operations at higher airspeeds as the flight progresses and the weight is reduced through fuel consumption. The proposed V_{NE} indicator would enhance the capability for this more economical operation.

The fourth commenter also suggests eliminating the warning device to be consistent with the suggestion to eliminate the V_{NE} indicator requirement, and further, that an aural warning could degrade the overall safety level by adding to the number of aural warnings now used; for example, fire, engine out, and landing gear. The third commenter also suggests that a warning light is sufficient. The proposal specifically states that the aural warning must differ distinctively from aural warnings used for other purposes so that there should be no confusion and the safety level would be enhanced. The proposal requires the V_{NE} indicator and warning only when other pilot cues are not provided; under these circumstances, a light, without aural warning, would more likely be overlooked. Accordingly, the amendment is adopted as proposed.

Proposal 2-58. One commenter agrees with the proposal. A second commenter assumes that proposed § 29.1309(b)(2)(i) would apply to the rotor and transmission systems since § 29.1309(a) refers to "this subchapter." This commenter's concern is that the proposed amendment would impose an extremely improbable failure requirement, defined as 1×10^{-9} or less per flight hour in Advisory Circular (AC) 29-2, Certification of Transport Category Rotorcraft, and AC 25.1309-1, System Design Analysis. The commenter states experience has shown the rotor and transmission systems failure rate to be only 1×10^{-6} at best. The FAA acknowledges that, as proposed, this section could be interpreted to include consideration of rotor and transmission systems, although the specific requirements for these systems are primarily contained in §§ 29.571, 29.901, 29.917, and 29.923. As noted in AC 29-2, § 29.1309 includes "but is not limited to electrical, pneumatic, and hydraulic power sources, associated distribution, and corresponding utilization systems," indicating, by these examples, the systems to which § 29.1309 is most applicable. There are other rotorcraft "systems" such as landing gear, propulsion, and fuselage that do not meet the 1×10^{-9} failure rate probability. To single out the rotor and transmission systems in this section is not appropriate. The general wording and concepts of this section have not caused problems in this area during past certifications.

The second commenter also notes that the term "improbable," as used in the proposed § 29.1309(b)(2)(ii) and as defined in AC 29-2, covers a failure rate range from 1×10^{-5} to 1×10^{-9}, which is too broad to be meaningful. This comment implies a need for an intermediate descriptive term and associated failure rate. Inclusion of such a term and associated failure rate would be more restrictive than the proposal since those systems to which the intermediate term would apply could be certificated under the proposal with a failure rate of only 10^{-5} per flight hour.

A third commenter questions the meaning and rationale for the phrases, "do not cause a hazard" (proposed § 29.1309(b)(1)), "prevent hazards" (proposed § 27.1309(b)), and "minimize hazards" (proposed § 27.1309(c)). In response to this comment, the FAA finds the phrase "do not cause a hazard" inappropriate since no difference in meaning is intended between the present § 29.1309(b) and proposed § 29.1309(b)(1) for Category B rotorcraft. Therefore, proposed § 29.1309(b)(1) is revised to read, "For Category B rotorcraft, the equipment, systems, and installations must be designed to prevent hazards to the rotorcraft if they malfunction or fail." The phrase "minimize hazards", as contrasted with "prevent hazards," allows (1) a level of safety that is compatible with single-engine rotorcraft, (2) less complexity, and (3) less costly systems and equipment. This lower level of safety for single-engine normal category rotorcraft is intended to permit practical designs that minimize weight and cost penalties.

A fourth commenter suggests combining proposed § 29.1309(b)(2)(i) and (ii) to state: "(2) For Category A rotorcraft, the equipment systems and installations must not prevent the continued safe flight and landing or cause injury to the occupants if they malfunction or fail, unless the malfunction or failure is shown to be extremely improbable." This suggestion would be more restrictive since it establishes the "extremely improbable" condition for a failure that only reduces the capability of the rotorcraft or crew. The FAA has also determined that injury to occupants is not a proper factor to be required in this analysis and this reference is deleted. This agrees with Part 25 in this area. For this reason, the suggestion is beyond the scope of the Notice. The commenter also refers to the National Transportation Safety Board (NTSB) Review of Rotorcraft Accidents 1977–1979 and quotes the document as showing that only 2.7 percent of the accidents were due to systems, instruments, and equipment. The FAA finds that during the 1977 to 1979 period, instrument-flight-equipped helicopters were a small percentage of the total helicopter fleet. This small percentage is not representative of the present fleet and it is projected to be even less representative each year. This is largely due to a rapid progression to increased system complexity from that of the 1977 to 1979 period. Systems such as electronic flight instrument systems (EFIS), fly-by-wire, and electronic fuel controls are now being presented for approval or are on the threshold of being presented. Loss of any one of these systems during instrument flight or loss of fly-by-wire or electronic fuel controls in any flight operation could be catastrophic. Therefore, the provisions of proposed § 29.1309(b) (2) (i) and (ii) are necessary to assure an adequate level of safety and are adopted.

The fourth commenter and a fifth commenter also suggest deleting the last sentence of the proposed § 29.1309(c) which requires designs to minimize crew errors which could create additional hazards. Both commenters state that it is too broad for clear application. While the requirement is broadly stated, there is a need to assure that installations such as identical switches, one frequently used and one infrequently used, such as fuel shutoff, are not placed side by side. It is impracticable to list all such poor design possibilities and the requirement is adopted as proposed.

The fourth and fifth commenters also suggest that the entire proposed § 29.1309(d) be deleted as it is "how to" which should only be in advisory circular material. This paragraph defines certain failure analysis criteria that can be stated clearly in the requirements. Accordingly, the amendment is adopted as proposed.

Proposal 2–59. This proposal would revise the airspeed system accuracy requirements of § 29.1323 to consider Category A and Category B flight profiles instead of differentiation by number of engines and to clarify that the requirements do not include instrument errors. One commenter states that since an airspeed error of not more than 5 knots is achievable, it should not be relaxed to 10 knots in a climb. Meeting the 10-knot error in a climb has been difficult for some rotorcraft and has resulted in complex systems or configurations requiring precise positioning of components. Retaining only a 5-knot error in a climb would not resolve these problems. The original conference proposal to allow a 15-knot error is an indication of the difficulties encountered in this area, but was considered to be excessive. A 10-knot error appears to be the best compromise between system complexity and safe, realistic indications. This same commenter suggests that the limit of a 3 percent error be deleted since an airspeed of 167 knots is required before it becomes a benefit. While 167 knots exceeds V_{NE} for most present-day rotorcraft, the proposal provides a design standard for the few present and any future rotorcraft with a V_{NE} greater than 167 knots.

A second commenter suggests that the minimum calibration speed in level flight be 30 knots rather than the proposed 20 knots because the difference is insignificant and does not improve safety or provide necessary information. The present rule requires single-engine rotorcraft systems to be calibrated at 20 knots and above, but requires calibration at 30 knots and above for multiengine rotorcraft. Amendment 29-3, effective February 25, 1968, changed the calibration requirement from 10 mph to the present 20 knots. Notice 82–12 explained the need for low-speed accuracy requirements for Category A operations. Accordingly, the amendment is adopted as proposed.

Proposal 2–60. This proposed change to § 29.1325(f) would relax the transport rotorcraft static system accuracy of ±30 feet at all airspeeds to ±30 feet per 100 knots airspeed as currently required for transport airplanes. One commenter agrees with the proposal and states that Part 27 should reflect the same level of accuracy as that required by Part 29. There is no comparable requirement in Part 27 and one was not proposed. Therefore, this suggestion is beyond the scope of the Notice. A second commenter notes that as written, the proposal would require zero altitude error at zero airspeed and suggests including the sentence from Part 25 which states that the error need not be less than ±30 feet. The FAA agrees and the amendment is changed to reflect that wording. A third commenter suggests changing the requirement to an allowable error of no more than ±30 feet below 100 knots or ±60 feet at higher speeds since there is no foreseeable need to consider speeds above 200 knots. However, the proposed amendment includes speeds above 200 knots and will not require a rule change if the unforeseeable does occur. Accordingly, the amendment is adopted with the change described.

Proposal 2-61. This proposal would clarify the design requirements for autopilots used in transport category rotorcraft and would add requirements in § 29.1329(e) for autopilots when interconnecting them with other systems. One commenter agrees with the proposal. A second commenter suggests that where an autopilot failure can result in hazardous effects on the control of the rotorcraft, a disengage control should be required to be on the cyclic control. Hazardous effects after a failure are precluded by compliance with the current § 29.1329(d). Requiring the disengaging control on the cyclic was discussed at the review conference and sufficient justification was provided to require only readily available disengagement. This decision is discussed in Notice 82-12, the major factor being that autopilot design must permit the pilot to control the rotorcraft first by overpowering a malfunctioning system, then disconnecting it. Where crew action is necessary to prevent a hazardous situation, this commenter suggests requiring a system to indicate the autopilot mode of operation and warning if it ceases to operate correctly. While the commenter's recommendation is beyond the scope of the Notice, the suggestion for indicating the mode of operation is retained for possible future action. Accordingly, the amendment is adopted as proposed.

Proposal 2-62. This proposed revision would modify the requirement for a power adequacy indicator for each required flight instrument. It would define the point at which required power measurements must be made. One commenter agrees with the proposal. A second commenter suggests that the term "required flight instrument" in current § 29.1331(a) should be clarified and recommends using Part 25 as an example. The commenter notes that this is beyond the scope of the Notice and recommends that Advisory Circular 29-2 address this question. Considering the definition of "instrument" in § 1.1, the FAA considers this section adequate as written but agrees that a discussion of the term "required" is appropriate for future revisions of AC 29-2. The amendment is adopted as proposed.

Proposal 2-63. The Notice contained a typing error which identified the proposals for §§ 29.1333 and 29.1335 both as Proposals 2-63 and no Proposal 2-64. This did not appear to cause a problem since only one commenter addressed these proposals and the comments were identified by section number, not proposal number. The commenter agrees with both proposals. The proposal for § 29.1333 would revise the requirements for instrument systems to reflect the increased complexity of instrumentation available, used, and necessary for transport rotorcraft to operate safely in the extreme range of operating environments to which they are now routinely exposed. The proposal for § 29.1335 would require Category B rotorcraft to meet the same electrical power source standards for required equipment and systems as are required for Category A rotorcraft. It further proposes wording as to the manner in which electrical power is maintained under fault conditions. The intent is to require two independent electrical power sources for essential load circuits for transport category rotorcraft. Accordingly, both amendments are adopted as proposed.

Proposal 2-65. This proposal would revise § 29.1357 by requiring Category B rotorcraft to have the overvoltage protection now required for Category A rotorcraft, by clarifying that all parts of a single essential system may be protected by the same circuit protective device, and by specifically stating under what circumstances automatic reset circuit breakers may be used. One commenter agrees with the proposal. A second commenter agrees with the proposal, but requests the term "essential to safety of flight" be well defined in Advisory Circular 29-2. This will be done. The amendment is adopted as proposed.

Proposal 2-66. Only one comment was received and it agreed with the proposal.

Proposal 2-67. This proposal would change the wording of § 29.1525 to clarify the requirements for approved kinds of operation without affecting the actual certification process. One commenter agrees with the proposal. A second commenter suggests that the list of kinds of operations be expanded to include all typical kinds and to require, by § 29.1583(e) the flight manual to include the appropriate compliance status with § 29.1525. The proposal lists, as examples, all such kinds of operations except external-load carrying that are applicable to certification. Specific uses, such as passenger-carrying, power-line patrol, logging operations, etc., are huge in number and not a basic certification requirement. Section 29.1583(e) presently requires that the flight manual list the approved kinds of operations. Since kinds of operations are defined in § 29.1525, there is no need to repeat them in § 29.1583. Accordingly, the amendment is adopted as proposed.

Proposal 2-68. This proposed revision to § 29.1555(a) would remove flight controls and other obvious control functions from the marking requirements for cockpit controls. The proposed change to § 29.1555(e) would require a placard stating the maximum landing gear operating speed (V_{LO}) in rotorcraft with retractable gear. One commenter agrees with the proposal. A second commenter proposes deleting the requirement for a V_{LO} placard near the landing gear control. This is discussed under Proposal 2-28. The same change to require a limit speed placard in clear view of the pilot is included in this amendment. A third commenter suggests that a rotorcraft could have a V_{LE} different from V_{LO} and that this should also be placarded. Where V_{LE} and V_{LO} are different, the landing gear operating speed normally is less than the landing gear extended speed. Requiring only V_{LO} would be the most conservative, but would not preclude placards of other speeds where appropriate. This third commenter also suggests that standardization (shape and color) of controls should be added to the rule with detail information in Advisory Circular 29-2. This suggestion is beyond the scope of this notice. The amendment is adopted with the change identified in Proposal 2-28.

Proposal 2-69. This proposal would remove the requirement for a placard which states that the rotorcraft must comply with the operating limitations contained in the rotorcraft flight and maintenance manuals. The required placard, containing over 50 words, was redundant to requirements specified elsewhere in the certification and operating rules. A much shorter placard was proposed. One commenter supports the proposal. A second commenter recommends the limitations placard reference the flight manual for information on limits. This same comment was made for Proposal 2-29; see that proposal for explanation. The amendment is adopted without change.

Proposal 2-70. This proposal implements an existing practice by specifying ambient temperature as an operating limitation. The proposal also adds the maximum allowable wind for safe operation near the ground as a limitation for transport Category A rotorcraft. One commenter agrees with the proposal but states that the explanation for excluding Category B rotorcraft from the maximum allowable wind limitation is not complete and the information should be included in the performance section of the flight manual. Proposal 2-72 does require the maximum demonstrated wind for safe operation near the ground as performance information for Category B rotorcraft. A second commenter suggests that the proposal be expanded to indicate more clearly that the sideward and rearward flight limits for crosswinds and tailwinds established by § 29.143(c) are the limits of concern. Section 29.143(c) is a controllability and maneuverability requirement. However, such factors as engine stall or surge due to inlet distortion, rotorcraft attitudes that could influence the unusable fuel quantity, and structural considerations also have been encountered as limiting conditions for maximum winds. Although these examples influenced the limits established for compliance with § 29.143(c), the controllability and maneuverability, in the narrowest sense, were not the limiting factors. Therefore, it is not appropriate to specify that this proposal is concerned only with § 29.143(c).

A third commenter states that the proposal seems appropriate, but goes on to state that the explanation implies restrictions to operations which would not be practicable or acceptable if operating to an unmanned site where wind and temperature information are not available. Under present VFR operating rules, when only area weather information is provided before departure, the pilot is responsible for evaluating the destination weather upon arrival. Under IFR operating rules, the pilot must be provided destination weather before beginning an instrument meteorological condition (IMC) approach. Therefore, the concerns of the third commenter are valid only under IMC where consideration must be given to several other IFR requirements that are more restrictive than those resulting from this proposal. The amendment is adopted as proposed.

Proposal 2-71. Only one comment was received and it agrees with the proposal.

Proposal 2-72. Three commenters suggest that the proposed § 29.1587 restriction on showing performance information beyond any operating limit should be deleted. The first of these commenters states that performance information beyond operating limits is used to calculate the effect of optional equipment. The second and third of these commenters give examples where the maximum allowable gross weight is greater with an external load. Two of these commenters suggest shading or other methods to indicate limits. These techniques have merit and have been used on recently certificated rotorcraft; however, some proposed manuals have been submitted to FAA with data that greatly exceed several limits and with little or no indication of the limits. The wording of the amendment is changed as follows:

"Flight manual performance information which exceeds any operating limitation may be shown only to the extent necessary for presentation clarity or to determine the effects of approved optional equipment or procedures. When data beyond operating limits are shown, the limits must be clearly indicated."

A fourth commenter suggests that instead of requiring the maximum demonstrated wind for starting and stopping the rotors in proposed § 29.1587(a) (4) and (b) (4), the maximum recommended wind should be required. Difficulty in obtaining the needed wind conditions for demonstration is cited as the major objection to the proposed wording. A fifth commenter states that even though the maximum demonstrated wind would appear under performance information, it would be interpreted as a limit. A sixth commenter suggests that a minimum of 17-knots wind, to be compatible with the control and maneuverability requirements, be required for the demonstration.

Guidance on rotor characteristics during starting and stopping is very desirable. However, there are so many variables to be considered that significant questions are raised on the capability to develop and verify adequate information without large and expensive analysis and test programs. A few of the wind-related variables that must be considered are wind velocity, gust magnitude, gust frequency, relative direction of the wind, and turbulence—natural and object induced. Imposed upon the wind factors are the rotor design, aerodynamic characteristics, and control techniques. Demonstrations (or recommendations) that address only a steady wind could be misleading. The FAA considers information on rotor characteristics during start and stop as highly desirable and encourages the manufacturers to provide as much guidance as feasible. However, in view of the difficulty and expense that would be required to develop and evaluate even an absolute minimum of data, the proposal to require the maximum wind for starting and stopping the rotors is withdrawn.

A seventh commenter suggests that the last sentences of proposed § 29.1587(a) (5) and (6) be deleted. These sentences state that the distances determined for takeoff under § 29.59 and landing under §§ 29.75 and 29.77 must be used in establishing takeoff and landing field lengths. The commenter is correct in stating that these sentences are unnecessary; therefore, they are deleted.

An eighth commenter objects to proposed § 29.1587(b)(6) which requires glide distance as a function of altitude. This commenter states that this is useless information and suggests that the speeds for minimum rate of descent and best glide angle with the associated glide angles be required. Requirements to provide the speeds associated with minimum rate of descent and best glide angle are included in § 29.1585 (Proposal 2-71). As discussed in the Notice, glide distance as a function of altitude is more readily usable information than just glide angle. Accordingly, this portion of the amendment is adopted as proposed.

A ninth commenter suggests that out-of-ground-effect hover performance information should be required for all transport category rotorcraft. This is beyond the scope of the Notice.

Amendment 29-21, effective after publication of Notice 82-12, added a new § 29.1587(b)(6). Therefore, the proposal is edited as necessary and is adopted as discussed.

Proposal 2-73. One commenter suggests that the proposed title of § 91.31 be changed to "Civil aircraft operating limitations." This section includes the requirements for markings and placards in older aircraft that do not require flight manuals. Therefore, the title proposed in the Notice is more descriptive of the section. FAA review notes that the proposed wording could be interpreted to require compliance with only flight manual, marking, or placard operating limitations. Experimental aircraft, which includes amateur-built aircraft, do not require a flight manual, markings, or placards, but operating limitations normally are issued with the airworthiness certificate. To provide for this example, or any other similar case, the last phrase is revised to read: ", or as otherwise prescribed by the certificating authority of the country of registry," and the amendment is adopted.

ECONOMIC SUMMARY

The FAA conducted an evaluation of the economic impact of these regulatory changes. A copy of the evaluation has been placed in the docket.

The assumptions used in preparing the economic impact estimates of the changes to the certification regulations are derived from earlier cost impact assessments of the proposals contained in Notice 82-12. Notice 82-12 invited public comments concerning technical and operational considerations and economic impact assumptions as they apply to rotorcraft performance, flight characteristics, systems, and equipment. Comments on the proposal were submitted by domestic and foreign manufacturer and operator trade associations. The majority of the comments recommend minor technical modifications and editorial clarifications. A number of comments, however, disagree with the economic impact estimates of various proposals. The FAA has evaluated the public comments and made final determinations regarding their impact. With only one exception, the FAA finds that the proposals determined to have an economic impact at the NPRM stage of rulemaking will also have an economic impact if the rule is adopted. The one exception is that the estimated savings resulting from § 29.175 is reduced from $50,000 per certification to a negligible amount as a result of industry comments and subsequent FAA technical amendments.

The five amendments determined to have an economic impact are related to limiting height-speed envelope, lightning protection for Parts 27 and 29 rotorcraft, providing of a means that will allow the pilot to determine that full control authority is available prior to flight for transport category rotorcraft, and adding an aural, never-exceed-speed indicator as a requirement for Part 29 certification. The evaluation of these amendments is summarized in Table 1.

Table 1
Costs and Savings of NPRM 2 Changes Having Economic Impacts

	Proposal	*Cost (Savings)*	*Benefits*
27.79	*Limiting Height-Speed Envelope* Revision of the weight requirements needed to establish performance at various altitudes.	($50 thousand per certification)	Reduction of Flight testing time by 10 hours and demonstration weight by approximately 15% at altitudes above sea level.
29.671	*Control Systems: General* The provisions of a means performing a control command verification procedure prior to flight in rotorcraft with boosted flight control systems.	5.2 million total incurred for first three production years.[1]	Benefit not quantified. Undetermined benefits are expected to accrue to operators and travelers by the prevention of accidents attributed to flight control system failures.
27.610	*Lightning Protection* (See 29.610)	(See 29.610)	(See 29.610)
29.610	*Lightning Protection* The protection of digital/electronic avionic and flight control systems against the disruptive effects of lightning strikes. The rule places special emphasis on rotorcraft with composite material primary and secondary flight structures.	The FAA requested industry comments on the cost of the lightning protection requirements of this section. Commentors did not provide cost data analysis required on the design and data analysis required to protect advanced digital avionics flight control systems will be furnished by a major FAA, NASA, and DOD task force research effort. The results of this study are expected to minimize the cost impact and the FAA believes that the rule will be cost beneficial.	The FAA believes that benefits will accrue to operators and travelers by the prevention of accidents attributed to the catastrophic effects of lightning strikes on critical avionics, flight control systems, structures, and fuel systems.
29.1303	Flight and Navigation Instruments	$1.1 million total incurred for first three production years, including maintenance costs.[2]	The provision of maximum allowable airspeed indicating system is expected to prevent Fatigue failure accidents attributed to overspeed conditions. On the basis of the $2.0 million average cost of fatigue failure accidents, the amendment would have to prevent less than one accident to justify its costs.

[1] Cost estimates are based on the addition of an electronic motor to allow full control movement prior to flight the FAA did not receive comments on the cost of implementing alternative means of complying with the proposal.

[2] The cost estimate is based on an instrumentation developed by one manufacturer to provide V_{NE} measurement and warning capability and to perform a power assurance check. The costs shown here are those attributable to the V_{NE} indicator and V_{NE} over speed warning device. The cost shown should provide an instrument that meets all safety aspects and gives a true speed measurement under all factors which can use V_{NE} to vary.

REGULATORY FLEXIBILITY DETERMINATION

The FAA has determined that under the criteria of the Regulatory Flexibility Act (RFA) of 1980, the amendments to Parts 1, 27, 29, and 91 contained in this final rule, at promulgation, will not have a significant economic impact on a substantial number of small entities. The RFA requires agencies to specifically review rules which may have a "significant economic impact on a substantial number of small entities." The FAA recently adopted criteria and guidelines for rulemaking officials to apply when determining if a proposed or existing rule has a significant economic impact on a substantial number of small entities and guidance for the conduct of regulatory flexibility analyses and reviews. The FAA small entity size standards criteria define a small helicopter manufacturer as an independently owned and managed firm having fewer than 75 employees. Under the FAA size standard criteria, only one manufacturer subject to the certification changes to Parts 1, 27, 29, and 91 has fewer than 75 employees. Table 2 shows domestic helicopter manufacturers and designation as to size. Accordingly, the amendments to Parts 1, 27, 29, and 91 contained in this final rule will not impact a substantial number of small entities.

There are no known diseconomies of scale associated with the anticipated marginal increase in certification costs. This change to the certification rules for Parts 27 and 29 helicopter manufacturers is not perceived to raise any barrier to entry into this market for small manufacturers.

Table 2

Parts 27 and 29 Rotorcraft Manufacturers

Part 27 Manufacturers	*Firm Size*
Brantly-Hynes Helicopters, Inc.	Small
Enstrom Helicopters Corp.	Large
Hiller Aviation	Large
Hughes Helicopters, Inc.	Large
Kaman Aerospace	Large
Robinson Helicopters	Large
Part 29 Manufacturers	*Firm Size*
Bell Helicopter Textron, Inc.	Large
Boeing Vertol Company	Large
Sikorsky Aircraft—United Technologies	Large

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1980 (44 U.S.C.3501 et seq). Existing requirements were approved by the Office of Management and Budget approval number 2120-0018.

ADOPTION OF THE AMENDMENT

Accordingly, Parts 1, 27, 29, and 91 of the Federal Aviation Regulations (14 CFR Parts 1, 27, 29, and 91) are amended effective December 6, 1984.

(Secs. 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, 1423 and 1424); 49 U.S.C. 106(g) (revised, Pub. L. 97-449, January 12, 1983))

NOTE: As summarized in the Supplementary Information, Discussion of Comments, Economic Summary, and Regulatory Flexibility Determination sections of this rulemaking action, the FAA has determined that the benefits of this amendment, in providing an increased level of safety to passengers traveling in rotorcraft while at the same time recognizing and providing for the unique qualities and capabilities of rotorcraft, far outweigh the burdens and that this action (1) involves a regulation that is not a major rule under Executive Order 12291; and (2) is not a significant rule under Department of

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Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, for reasons discussed above, I certify that under the criteria of the Regulatory Flexibility Act these amendments will not have a significant economic impact on a substantial number of small entities. Also, these amendments would have little or no impact on trade oportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States. A final regulatory evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

Amendment 91-186

Temporary Flight Restrictions

Adopted: October 31, 1984 **Effective: June 6, 1985**

(Published in 49 FR 48030, December 10, 1984)

SUMMARY: This amendment to § 91.91 of the Federal Aviation Regulations (FAR) provides for imposition by the Administrator, or his designee, of temporary flight restrictions over an area in which all aircraft activity would be prohibited, except appropriate rescue activity, when an incident or event on the surface poses a hazard to people on the ground or to airborne aircraft. The amendment also narrows the circumstances in which aircraft may be relieved from complying with certain temporary flight restrictions to those operations that are approved by the official in charge of on scene emergency response activities. The flight plan filing and notification requirements have also been relaxed for certain operations.

FOR FURTHER INFORMATION CONTACT: Mr. William C. Davis, Airspace and Air Traffic Rules Branch, ATO-230, Airspace-Rules and Aeronautical Information Division, Office of the Associate Administrator for Air Traffic, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone (202) 426-8783.

SUPPLEMENTARY INFORMATION:

Background.

Currently, under FAR § 91.91, the Administrator may impose a temporary flight restriction (TFR) to prevent congestion of sightseeing aircraft over an event which may generate a high degree of public interest, or to provide a safe operating environment for disaster relief aircraft. An example typical of Notices to Airmen (NOTAM) establishing an area wherein TFR's apply would be:

> Flight restrictions relief aircraft operations, Minner, Iowa, effective immediately and until 2359 GMT, January 6, 1983. Pursuant to FAR § 91.91 temporary flight restrictions are in effect within a 5 statute mile radius of the Minner VOR at and below 3,000 feet AGL. Minner flight service station (FSS) (792) 555-6742. Pleasant County Sheriffs Department (792) 555-8122 is the agency directing relief activities.

The rule allows five major exceptions to the prohibition against flight in those areas: (1) Aircraft participating in disaster relief, and operated under the direction of the agency responsible for relief operations; (2) aircraft operating to or from an airport within the area and operated so as not to hamper or endanger relief activities; (3) operations specifically authorized under an instrument flight rules (IFR) air traffic control (ATC) clearance; (4) en route operations under visual flight rules (VFR), when flight around or above the area is impracticable due to weather, terrain, or other considerations, notice is given to the air traffic facility specified in the Notice to Airmen, and the operation does not hamper or endanger relief activities; and (5) the aircraft is carrying accredited news representatives or persons on official business concerning the incident or event, is operated above the altitudes used by disaster relief aircraft unless specifically authorized to fly lower, and the operator has filed a flight plan to include any information deemed necessary by ATC.

Several incidents have demonstrated the need for control broader than that provided for in current § 91.91 in order to ensure adequate levels of safety of persons and property on the ground. For example, in March 1981, a high-rise condominium under construction in Cocoa Beach, Florida, collapsed. Ground rescue teams, using listening devices, were trying to determine if any survivors were trapped beneath the rubble. A news helicopter operating in the area created noise rendering the listening devices useless.

Another incident occurred near Crestview, Florida, on April 8, 1979. A train derailment caused chlorine gas to be released into the atmosphere. Later, as rescue personnel were staging beneath the gas cloud, rotor wash from a low flying helicopter forced gas into the staging area, causing injury to several rescue team members. The Fort Worth, Texas, Office of Emergency Management, has also advised of an incident that occurred in that city in 1982 involving a chlorine gas tank leak at a water treatment plant. A news media helicopter landing close to the incident created rotor wash which dispersed the toxic gas into an area where people were working. Approximately seven persons were taken to the hospital for treatment. A Fort Worth city official stated that these casualties would not have occurred if the media helicopter had not been operated so close to the incident site.

In all of the above examples, flight restrictions under § 91.91 were implemented by local FAA elements. However, the operations which proved hazardous to ground personnel were specifically excluded from the restrictions under the current rule. A number of other incidents have occurred, with little warning, which have created a hazard to aircraft, but which have not been within the scope of the current § 91.91. Those incidents include persons discharging firearms at aircraft, toxic gas releases, and bomb detonations. A recent coal gas leak from a deep mine that had been "sealed" for several years created a potential hazard to unwary aircraft operators and occupants. Those incidents do not, by definition, qualify for current § 91.91 restrictions. In those types of cases, the FAA needs swift procedures for the issuance of temporary flight prohibitions to provide adequate protection of airborne aircraft and aircraft occupants. It is, therefore, necessary to revise and update § 91.91 to cover such situations.

These amendments are based on a Notice of Proposed Rulemaking (Notice No. 82-7) published in the *Federal Register* on April 29, 1982, (47 FR 18560). All interested persons have been given an opportunity to participate in the making of these amendments and due consideration has been given to all matters presented. A number of substantive changes and changes of an editorial and clarifying nature have been made to the proposed rules based upon relevant comments received and upon further review by the FAA. Except for minor editorial and clarifying changes and the substantive changes discussed below, these amendments and reasons for their adoption are the same as those contained in Notice 82-7.

Discussion of Comments:

The National Transportation Safety Board (NTSB) filed comments supporting the proposed rule, and suggests the phrase "on the ground" in proposed § 91.91(a) (1) be replaced with the phrase "on the surface" in order to make it clear that it includes situations over waterways, rivers, and bodies of water. The NTSB also suggests the phrase "agency responsible for relief activities" in proposed § 91.91(b), (d) (1), and (d) (3), be replaced by the phrase "official in charge of on scene emergency response activities." The recommended changes more clearly convey the intent of the proposed rule as well as the current rule, and the rule reflects these changes.

The Aircraft Owners and Pilots Association (AOPA) generally agrees with the proposed rule, and believes that every effort should be made to exclude airports from TFR areas. To the extent this cannot be accomplished, AOPA does not believe operators should be required to notify the FAA for flight to and from an airport within the TFR area. AOPA states that this is not a provision in the current rule because those operations are required to be conducted without hampering or endangering relief activities.

The FAA agrees that there is no reason to require notification for an operation into a TFR when the operation is necessitated by weather, terrain, etc., because the objective of the TFR would not be affected by such infrequent and noninterfering occurrences. However, in situations which require disaster relief aircraft operations, the FAA must provide for the safety of those aircraft as proposed by requiring notification of flight into and within any TFR designated under those conditions. Notification serves to establish a means whereby aircraft operators receive information concerning the nature of relief aircraft activities. Operators, using this information are better equipped to conduct flight so as not to hamper or endanger relief activities. The final rule has been revised to provide that notification will be for the purposes of receiving advisories concerning relief activities.

AOPA and the National Business Aircraft Association (NBAA) recommend that the duration of the TFR be set forth in the implementing NOTAM. This recommendation does not require a rule change and will be coordinated with the appropriate FAA offices and facilities.

The NBAA also suggests that a clear explanation in the NOTAM of the reason the restriction is imposed should result in greater cooperation in avoiding a hazardous area, and that an education program be conducted to inform pilots of the provisions of the new rule. The FAA intends to publish an advisory circular which will be available to interested parties. Additionally, the NBAA suggests an annual review be conducted of all TFR operations under the rule to determine if the provisions of the rule with respect to these operations are warranted. The FAA periodically reviews TFR's that have been issued and will continue to do so.

The State of Oregon Aeronautics Division in support of the rule recommends the inclusion of a procedure for amending NOTAM's if circumstances should develop which required more restrictive requirements. It also suggests that notice of any upgraded condition be accomplished by radio broadcasts. Situations that necessitate upgrading a TFR NOTAM should be very rare. However, if this should become necessary, the NOTAM can be cancelled quickly and easily by the issuance of a more restrictive NOTAM.

The Offshore Racing Commission of the American Power Boat Association (ORC) agrees generally with the proposed rule, but objects to the provisions of the current rule which provides for news media operations in the TFR area. ORC believes that helicopters carrying news representatives to cover boat races operate dangerously close to the high speed racing craft and are having a serious effect on the boats' attitude. ORC recommends that the rule provide for the establishment of a minimum altitude within the TFR area which would apply to all aircraft except those assigned for safety or official business purposes by officials of the event. With respect to events such as boat races, the current rule provides for the establishment of a TFR area to preclude an unsafe congestion of sightseeing aircraft. Since news media aircraft are not sightseeing aircraft, they are not covered by the current rule and no change in these provisions was proposed in Notice 82-7.

The ORC also suggests that an FAA representative be present during race events to monitor the TFR area for FAR violations. The FAA does not believe it is necessary to monitor all events where news media coverage is accomplished by aircraft. The current regulations provide for the safety of persons and property on the surface. For example, while § 91.79 allows helicopters to be operated at altitudes above, and distances from, persons, vessels, vehicles, or structures less than those required of fixed wing aircraft, it also requires such operations to be conducted without hazard to persons and property on the surface. If there is reason to believe that an aircraft is not being operated in compliance with the regulations, or that an operator cannot determine the minimum safe distance from participating racing craft, then the local FAA General Aviation District Office should be contacted for assistance.

The State of Idaho Department of Transportation, in support of the proposed rule, noting several incidents in which rescue aircraft and people being rescued were directly endangered by unauthorized aircraft operations, suggests that speeding the process of imposing TFR's might add strength to the rule, and that the text of implementing NOTAM's should be written in a style that would facilitate ease in plotting. These suggestions are appreciated and will be considered during a review of the ATC procedures concerning TFR's. Further, it recommends that the agency which requested the TFR be the only authority for allowing flight in the TFR. Both Notice 82-7 and this final rule contain this provision with respect to hazards associated with incidents on the surface. However, in the other situations, the FAA believes the current regulations are sufficient.

The Miami, Florida, fire department noted that the city of Miami fire/rescue has experienced disruption of emergency operations through interrupted radio messages due to aircraft noise and through prop wash moving toxic fumes and blowing blankets, bandages, etc. off of victims of the incident. The city of Miami fire department, the International Fire Service Training Association, The Oklahoma State University Fire Service Training Department, the South Carolina State Firemen's Association, the Prattville, Alabama, fire department, and the Fargo, North Dakota, fire department filed comments in support of the amendment to the rule. The comments of the Chemical Manufacturers Association, Military Airlift Command, Air Transport Association, and the Air Line Pilots Association also support the amendment.

Two broadcast news organizations—Columbia Broadcasting System, Inc. and National Broadcasting Company, Inc.—and three associations—the National Association of Broadcasters, the Society of Professional Journalists/Sigma Delta Chi, and the Radio-Television News Directors Associations—submitted joint comments expressing support for the safety objectives served by § 91.91, but strongly opposing the adoption of the proposed amendment insofar as it would prohibit news organizations from flying over the sites of newsworthy events whenever a temporary flight restriction is imposed to protect persons and property on the ground or in the air from hazards associated with an incident on the ground. The joint broadcasting and journalism commenters propose two alternatives to the FAA proposal. First, the commenters propose a less restrictive regulation under which news gathering aircraft would maintain a communications link with FAA and/or rescue personnel at the emergency site, and could receive the recommendations of rescue personnel to avoid unsafe conditions. Alternatively, if the rule, as proposed, is made final, the joint commenters urge the adoption of guidelines to minimize the effect on news aircraft.

The FAA agrees that, consistent with the First Amendment guarantees of the Constitution, regulation of aerial newsgathering should be no more restrictive than is essential to achieve safety. However, we cannot agree that the procedures proposed by the joint commenters for a ground-to-air communications link with newsgathering aircraft, which would permit air traffic control specialists to make flight recommendations, are adequate to assure safety. The FAA appreciates the spirit of responsibility and cooperation of those aerial newsgathering journalists who routinely cooperate with FAA in an effort to assure that their activities pose no safety hazard to others. Nevertheless, incidents involving the news media do occur. Therefore, reliance on recommendations in lieu of airspace restrictions would not be sufficient to assure safety. Furthermore, the establishment of communications links often is not feasible in emergency situations, and any establishment and use of such communications by newsgathering aircraft could divert resources needed for rescue activities.

However, the FAA agrees with the suggestion that guidelines should be prepared to prevent unnecessary restriction on aerial newsgathering. The FAA intends to issue an advisory circular and to revise national ATC procedures to ensure that only in cases where a hazard is present to persons and property on the ground or in the air will a total ban be placed on all aircraft.

Finally, based on a review of the comments received and further FAA consideration, certain paragraphs have been editorially rearranged and several paragraphs have been reworded to use language usually used in NOTAM's designating temporary flight restrictions. The requirements applicable to law enforcement and event personnel have been separated from the requirements applicable to news representatives.

Economic Analysis: This amendment is in accordance with the FAA policy of seeking an acceptable level of air safety for all airspace users. The economic benefits and costs of this amendment to consumers, the public, Federal, State, and local governments have been considered and found to be negligible.

Consequences: There would be three types of operations that are presently permitted under the current regulation that would be prohibited under the proposed rule in certain situations. The types are:

(1) Operations to or from an airport within the designated area.

(2) VFR overflight operations when flight conditions around the designated area prevent another route.

(3) News media operations.

In the case of type (1) operations, the designating FAA facility would, to the maximum extent possible, exclude airports from the designated area. In the event an airport is included in the area, impacted arrival operations would have to use an alternate airport. Aircraft desiring to depart, on the other hand, could not depart until the restrictions were relaxed or cancelled.

In the case of type (2) operations, it would be almost impossible for the ATC facility to recommend other than avoiding the area completely.

News media operations (type (3)) would be, because of a perceived need to fly "low and close," prohibited entirely and without an alternative course of action except to conduct operations from the ground.

There have been approximately 10 incidents over the past 5 years that would have warranted implementing temporary flight restrictions that would have excluded all types of air operations except for relief activities. This represents an average of two relief activities per year. Of this average, it is estimated that there would be no economic impact on type (1) and (2) operations because the areas in which restrictions apply generally encompass a 2 nautical mile radius with the ceiling at 2,000 feet above ground level.

Since all news media would be excluded, some extra expenses may be incurred such as costs for alternate transportation means. In view of the number of occurrences, this impact is considered insignificant. In any event, if any unforeseen economic burden were to be placed on operators, it would be definitely offset by the enhanced safety benefits, afforded by the rule, to ground relief crews and unwary aircraft occupants.

Benefits: This amendment is expected to increase safety and efficiency in the areas where ground crews would be susceptible to life-threatening conditions—conditions which could be compounded by low flying aircraft. Additional safety benefits are expected to be realized by aircraft in flight because of the protection from hazards emanating from the surface.

Determination: Considering the limited number of times this amendment would be invoked, the inherent benefits to the public and the overall economic evaluation, including the effects on small business entities, the economic impact of this rule is judged nonsignificant. There should be no appreciable economic impact to the public, consumers, Federal, State, and local governments.

Because the very small number of incidents per year that would warrant imposition of a temporary flight restriction with the stricter provisions adopted by this amendment and the generally small radius and low ceiling of the restricted areas, this document involves a rulemaking action which is not a "major rule" under Executive Order 12291 and is not a "significant rule" under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). For these reasons and because the only economic benefits would be those to individuals who receive additional protection from the revised rule, I certify that, under the criteria of the Regulatory Flexibility Act, the

amendment will not have a significant impact on a substantial number of small entities. In addition, the FAA has determined that the expected impact of this amendment is so minimal that it does not require a full evaluation.

THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended by revising § 91.91 effective June 6, 1985.

[Secs. 307 and 313(a), Federal Aviation Act of 1958, as amended (49 U.S.C. Sections 1348, 1354(a)); 49 U.S.C. Section 106(g) (Revised, Pub. L. 97-449, January 12, 1983); and 14 CFR 11.45.]

Amendment 91-187

Airport Radar Service Areas

Adopted: February 27, 1985 **Effective: March 14, 1985**

(Published in 50 FR 9252, March 6, 1985)

SUMMARY: This action adopts certain National Airspace Review (NAR) recommendations concerning air traffic rules governing flight operations within airspace designated as "airport radar service area (ARSA)." Specifically, this action defines "airport radar service area" and establishes air traffic rules for operation within such an area. The initial airport radar service areas are established under separate rulemaking actions in Airspace Docket No. 84-AWA-31 for the Robert Mueller Municipal Airport, Austin, TX; the Port Columbus International Airport, Columbus, OH; and the Baltimore/Washington International Airport, Baltimore, MD. Future notices will propose airport radar service areas for other locations.

FOR FURTHER INFORMATION CONTACT: Mr. William C. Davis, Airspace-Rules and Aeronautical Information Division, ATO-200, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, telephone (202) 426-8783.

SUPPLEMENTARY INFORMATION

Background

On April 22, 1982, the NAR plan was published in the *Federal Register* (47 FR 17448). The plan encompasses a review of airspace use and the procedural aspects of the air traffic control (ATC) system. The three main objectives of the NAR are:

(1) To develop and incorporate into the air traffic system a more efficient relationship between traffic flows, airspace allocation, and system capacity. This will involve the use of improved air traffic flow management to maximize system capacity and improve airspace management.

(2) To review and eliminate, wherever possible, governmental restraints to system efficiency levied by Federal Aviation Regulations (FAR) and FAA directive-reducing complexity and simplifying the ATC system.

(3) To revalidate ATC services within the National Airspace System with respect to state-of-the-art and future technological improvements. This will entail a complete review of separation criteria, terminal control area/terminal radar service area (TCA/TRSA) requirements, instrument flight rules/visual flight rules (IFR/VFR) services to the pilot, etc.

Organizations participating in the NAR task group are:

Federal Aviation Administration
Department of Defense
Air Transport Association
National Business Aircraft Association
Regional Airline Association
Aircraft Owners and Pilots Association

Experimental Aircraft Association
Helicopter Association International
Air Line Pilots Association

NAR RECOMMENDATIONS PERTAINING TO THE PROPOSAL

The comprehensive plan contains an administrative structure and detailed task assignments which resulted in recommendations to the FAA, including the NAR Task Group 1-2.2 recommendations set forth below.

NAR 1-2.2.1 REPLACE TRSA's WITH AIRPORT RADAR SERVICE AREAS (ARSA's)

"The Task Group recommends that the current Terminal Radar Service Area (TRSA) program—Airspace and Services—be discontinued. The Task Group further recommends that the concept identified herein as [airport radar service area (ARSA)] be implemented as replacement for the TRSA program in accordance with the recommendations to follow."

(The task group recommendations referred to the ARSA concept as "Model B Airspace." References to "Model B Airspace" have been replaced with the term "ARSA" for consistency with the terminology used in the FAA rule.)

NAR 1-1.2.2 ARSA SIZE AND OPERATING REQUIREMENTS

"The Task Group recommends that the physical dimensions of [an ARSA] shall be a 10 NM radius capped at 4,000 feet height above airport (HAA) from the primary airport. This airspace shall extend down to 1200 feet above the surface except that an inner core with a 5 nautical mile radius shall extend down to the surface. Except for aircraft departing from satellite airports/heliports within [an ARSA], all aircraft shall establish two-way radio communications with ATC prior to entering [an ARSA]. Aircraft departing satellite airports/heliports within the surface area of [an ARSA] shall establish two-way radio communications with ATC as soon as possible. Pilots must comply with approved FAA traffic patterns when departing these airports."

NAR 1-2.2.3 OUTER AREA LIMITS AND OPERATING REQUIREMENTS

"The Task Group recommends that the outer limit of [the area outside of the ARSA in which ARSA services are provided by an ARSA facility] be the same dimensions as the radar/radio coverage within each approach control's delegated airspace. While strongly encouraged, two-way radio communications is *not* a VFR requirement in [this airspace] and aircraft are not restricted from entering/transmitting this airspace."

NAR 1-2.2.4 ATC SERVICES

"Services provided within [an ARSA] shall be as follows: Sequencing of arriving aircraft; IFR be provided standard IFR separation; IFR to VFR be provided traffic advisories and conflict resolution so that targets do not merge at the same altitude; and VFR to VFR be provided traffic advisories. Furthermore, aircraft operating outside [an ARSA but within the approach control's area of jurisdiction] will receive [ARSA] services upon establishing two-way radio communications and radar contact."

[NAR 1-2.2.5 Not applicable to this proposal]

NAR 1-2.2.6 AIRSPACE DESIGNATION CRITERIA

"The Task Group recommends that, excluding TCA locations, all airports with an operational airport traffic control tower and currently contained within a TRSA serviced by Level III, IV, or V radar approach control facility shall have [an ARSA] designated; unless a study indicates that such designation is inappropriate for a particular location. Any other location serviced by a radar approach control facility may be considered as a candidate location [an ARSA] on the basis of a thorough staff study considering, but *not limited to,* the following:

1. Traffic mix, flow, density, and volume.
2. Airport configuration, geographical features and adjacent airspace/facilities.
3. Collision risk assessment.

4. ATC capabilities to provide [ARSA] services to the users at maximum benefit and minimum cost.

All proposed [ARSA] actions shall be subject to regional and headquarters approval. Military operated facilities will process requests through appropriate military and FAA channels. Any [ARSA] location which fails to meet the establishing criteria for its respective location for more than 12 consecutive months, shall be subject to a regulatory review to terminate the [ARSA] designation."

NAR 1-2.2.7 CHARTING

"The Task Group recommends for further consideration by Task Group 1-6 that all [ARSA's] be charted, and that either a visual or narrative method of identifying the [area in which ARSA services are provided by an ARSA facility] be undertaken."

NAR 1-1.2.8 EDUCATION

"The Task Group recommends the aviation community be made aware of [the ARSA program] by educational programs to support ATC operational and procedural information, phraseology, practices, and the desirability of voluntary participation. Specifically, it is recommended:

1. All FAA pilot exams and appropriate textbooks must contain a significant amount of questions and information concerning radar operation in terminal areas. Specifically, operations and procedures be included in written and practical tests for pilot certification, ratings, and reviews.
2. Specific questions and answers must be required on all flight reviews and other appropriate occasions (air carrier initial and recurrent proficiency training, pilot proficiency exams, biennial flight review, etc.) to assure that users in every aviation community have shown a current understanding of radar terminal areas and their use of these areas.
3. The FAA develop and fund a traveling air traffic team to speak to pilot groups on operations within the National Airspace System; i.e., [ARSA]. Emphasis should be given to flight instructor contact.
4. An advisory circular dealing with [the ARSA program] be published to include well presented, up-to-date information on operations in terminal airspace and that this advisory circular be given the widest possible dissemination to aviation users and organizations.
5. The Airman's Information Manual (AIM) be distributed free of charge to all fixed-base operators (FBO's) at all public use airports.
6. FAA Public Affairs Office develop and promote through the general news media, aviation awareness of FAA services and publications available to the pilot and general public.
7. Facts about terminal airspace in some form of questionnaire be developed and distributed by the FAA to appropriate agencies (licensed pilots, fixed-base operators, business organizations, etc.). This questionnaire could be a public relations effort, advisory circular, or included in the Airman's Information Manual.
8. FAA continue to make available to interested pilot groups training or other audio-visual aids that deal with terminal radar operations."

A copy of the task group's report is in the public docket.

THE ARSA CONFIRMATION

In Notice 83-9 [July 28, 1983; 48 FR 34286], the FAA stated that it believed in the merits of the task group's recommendations, and set forth aspects of those recommendations which could be confirmed under a proposed Special Federal Aviation Regulation (SFAR) at Austin, TX, and Columbus, OH. After reviewing the proposal in the light of the comments received, the FAA issued SFAR No. 45 [October 28, 1983; 48 FR 50038] to accomplish the confirmation.

The FAA contracted with Engineering and Economic Research, Inc. (EER) to analyze user operational experience with the ARSA's at Columbus and Austin. A copy of the EER analysis is in the docket. The FAA, itself, conducted random informal evaluations of ATC procedures which were also being confirmed. Informal discussion between FAA management and air traffic controllers at Columbus and Austin concerning ARSA operations and air traffic procedures were conducted routinely. These activities revealed that a significant majority of users approve of the ARSA concept in the NAR recommendations. The FAA also conducted a detailed analysis of comparative radar data gathered before and during the confirmation at Columbus, a copy of which is in the docket, and found that the ARSA produced a significant reduction in collision risk.

The FAA concluded that the confirmation at Columbus and Austin indicated probable benefits of the ARSA program for users at other locations. The confirmation also revealed an ARSA to be a practical replacement for a TRSA from an ATC procedural standpoint. On November 30, 1984, the FAA published Notice No. 84-22 which proposed air traffic rules governing flight operations within designated ARSA's (49 FR 47184).

ANALYSIS OF COMMENTS

The FAA received 17 comments on the Notice of Proposed Rulemaking (NPRM) published November 30, 1984, in Docket No. 23708, in addition to 15 comments received earlier in the same docket in response to SFAR 45, which included a request for comments. Also, several comments received in the related Airspace Docket No. 84-AWA-31 contained remarks pertinent to Docket No. 23708, and were considered in the development of this rule. Those persons who have an interest in either proposal are encouraged to review the comments submitted in both dockets.

Several commenters were critical of the comment period on the NPRM provided by the FAA, and requested an extension of the comment period. The FAA believes the period of notice and comment was sufficient to permit full public comment on the proposed rule. The flight rules adopted in this amendment have been the subject of extensive discussion and review by the aviation public as a result of the NAR process, by which the rules were recommended. Moreover, the designation of any particular site for establishment of an ARSA will be the subject of additional rulemaking, with the opportunity for additional public comment.

The comments received on the SFAR between December 1983 and August 1984 were generally critical of the ARSA concept, although not on the basis of actual experience with the Austin, TX, or Columbus, OH, ARSA's. Common comments were that the standardized ARSA airspace will not serve the intended purpose in areas of mountainous terrain, will discourage or preclude certain activities such as soaring near ARSA airports, and will inhibit free access to satellite airports within an ARSA. The FAA does not believe that any of the above criticisms constitutes an unsurmountable problem with establishment of the ARSA program or presents sufficient reason to depart from the general policy of establishing ARSA's in a standardized configuration. However, the actual configuration of any particular ARSA will take into consideration any unusual terrain features. Also, there are means to accommodate the presence of satellite airports and, where consistent with ATC safety and efficiency, VFR activities such as soaring. These measures are discussed in more detail below in connection with comments received in response to the most recent NPRM.

Comments received from organizations which participated in NAR Task Group 1-2.2 were generally supportive of the proposed ARSA rules. These groups included the Aircraft Owners and Pilots Association (AOPA), the Air Transport Association (ATA), the Experimental Aircraft Association (EAA), the National Business Aircraft Association (NBAA), the Regional Airline Association (RAA), and the Air Line Pilots Association (ALPA). In each case the above groups offered additional comments or requests which, together with other comments received, are discussed below by subject.

Establishment Criteria

Several commenters addressed the need for specific criteria for establishment (and disestablishment) of ARSA airspace at individual sites, rather than considering each existing TRSA as an automatic candidate for an ARSA. Recommended criteria included aircraft operations and passenger enplanements, proximity of other airspace complexes and other airports, and geography. AOPA also suggested that in addition to TRSA's, those TCA's which currently do not meet the standards for establishment of a new TCA also be considered as candidates for replacement by an ARSA. One commenter also requested that any specific criteria developed by FAA for establishment of an ARSA first be proposed in an NPRM and published in the *Federal Register* for comment.

FAA consideration of most TRSA sites as candidates for ARSA's is adopted in response to NAR Recommendation 1-2.2.1. Initially, only those TRSA locations which are served by a Level III, IV, or V terminal radar facility will be considered for establishment. In each case, an ARSA would be established only after issuance of an NPRM and the opportunity for public comment on the merits of an ARSA at the proposed location. The impact on the proposed ARSA of local geography, adjacent airspace configurations, and nearby airports would receive full consideration by FAA not only in determining appropriate adjustments to the configuration of the ARSA, but also in determining whether it would be appropriate to establish an ARSA.

FAA is currently in the process of developing specific quantitative criteria, such as traffic and passenger enplanements, for example, for proposing the establishment of ARSA's for locations that are not TRSA's or that are not served by a Level III, IV, or V approach control facility. FAA will issue the criteria before proposing such additional ARSA locations. FAA does not intend to develop the criteria through the formal rulemaking process, but will take into consideration all comments relating to establishment criteria received in the docket.

FAA has not proposed to consider any existing TCA's for potential replacement by ARSA's, and does not adopt such a policy at this time.

Potential Impacts

Comments critical of the proposal generally involved concerns about increased delays, the exclusion of certain user groups, and potential safety impacts. Several commenters were concerned that establishment of an ARSA would increase traffic delays in that area as a result of unnecessary separation standards, extensive vectoring, and the difficulty in contacting ATC due to frequency congestion. Because participation in existing TRSA's is high, and separation standards in an ARSA are less than those in a TRSA (radar separation standards in an ARSA are less than 1.5 mile lateral standard for participating aircraft in a TRSA), FAA does not believe that the implementation of mandatory separation in ARSA's will result in any significant traffic delays. For the same reason, the FAA does not anticipate extensive or circuitous vectoring of aircraft in an ARSA. The NAR proposal was intended to minimize the vectoring or rerouting of VFR aircraft in affected terminal airspace, and this should be accomplished by the procedures implemented by FAA. Moreover, the only requirement to enter an ARSA is two-way radio communications with ATC. In the absence of subsequent ATC instructions, the pilot may proceed via his/her planned route. Finally, FAA does not believe that radio frequency congestion will result in delays or exclusion from an ARSA. When congestion is experienced, resource adjustments will be considered to resolve the problem.

A few commenters on the NPRM expressed concern that an ARSA would have the effect of excluding some VFR pilots, primarily recreational aircraft and sailplanes. The ARSA requirement for two-way radio communications does effectively preclude aircraft not having this basic communications capability from entering an ARSA, without special ATC authorization. FAA believes, however, in consideration of the safety benefits of the communications requirement, that the effects of the rule are limited and are fully justified. Moreover, as discussed below in connection with ARSA configuration, special procedures will be considered on a site-specific basis to permit access to nontower airports underlying an ARSA, without entering ARSA airspace. It may also be possible, at affected sites, to accommodate soaring and other recreational VFR flight activities in an ARSA through agreement with the controlling ATC facility. In the rulemaking which will precede the establishment of each individual ARSA, FAA will consider comments and suggestions on means for the safe and efficient accommodation of aviation activities which might otherwise be precluded by the proposed ARSA.

While none of the commenters on the NPRM claimed that an ARSA would reduce safety rather than enhance it, several safety-related issues were raised in comments on the NPRM and on the previous SFAR. One commenter suggested that controller workload would be substantially increased by the implementation of an ARSA. The FAA is confident that an increase in traffic will only result from the handling of aircraft not presently participating in the TRSA program and that any such increase would not cause a substantial increase in an individual controller's workload because of the present high level of participation in the TRSA program. However, if an ATC facility does experience a substantial increase in traffic handled, the FAA will take the necessary measures to ensure that adequate facilities and personnel are available to handle the increase.

Another comment was that the establishment of an ARSA, with its operating requirements, would lead many VFR pilots to avoid the ARSA, resulting in compression of traffic in adjacent areas. FAA does not believe that a significant number of pilots will choose to avoid ARSA airspace, given the minimum burden involved of contacting ATC. Also, the airspace taken by an ARSA is not extensive either laterally or vertically, and in most locations there is no reason to conclude that traffic circumventing the ARSA would be compressed into a confined area. A final safety-related comment received was the concern that provision of radar separation in an ARSA would generate a false sense of security in VFR pilots, and would undermine the duty to see-and-avoid other aircraft. See-and-avoid responsibility is not relieved or diminished in an ARSA, and FAA intends to make this responsibility clear in informational announcements and materials dealing with the ARSA program. However, FAA believes that any possible misperception of some pilots as to their see-and-avoid responsibilities in an ARSA environment, is an issue of pilot education, and does not support the nonadoption of the ARSA concept itself.

ARSA Configuration and Dimensions

Many of the commenters suggested changes to the ARSA dimensions as proposed, while others urged that no consideration be given to expansion of the proposed dimensions. Commenters generally supported the FAA policy of standardizing the dimensions of ARSA's, and NBAA in particular expressed concern at FAA's announced intention to consider "customization" of areas in certain circumstances. FAA has adopted the dimensions as proposed, and, in the absence of special circumstances, individual ARSA's will be proposed in the standard configuration. However, the existence of other airports or controlled airspace adjacent to the primary airport may present a situation in which the standard configuration is not feasible.

AOPA and EAA both requested that access to satellite airports within a proposed ARSA be protected. AOPA specifically requested that the traffic pattern of a satellite airport be excluded from the ARSA and depicted as a cutout from the ARSA on aeronautical charts. AOPA argued that traffic to and from satellite airports should not be required to participate in the ARSA, and that exclusion of the satellite airport traffic pattern from the ARSA is the only way to avoid pilot confusion. EAA suggested that access to satellite airports within the 5-mile core of an ARSA, without participation in the ARSA, could be allowed by retaining the provisions of FAR 91.85(b). Section 91.85(b) permits operation to and from the satellite airports in an airport traffic area. FAA believes that establishment of an ARSA will not necessarily have an adverse effect on access to satellite airports within the ARSA, and that where there is a potential for such effect, it can be resolved. Satellite airports with control towers, whether in the 5-mile core or the 10-mile shelf area, will require no adjustment of the ARSA configuration. Local procedures established between the satellite tower and the ARSA controlling facility will ensure that pilots remain in contact with the appropriate facility, and that access to the airport through ARSA airspace is not impeded. For nontower airports located under the 5- and 10-mile shelf, no reconfiguration of the standard ARSA is required because aircraft may approach and depart the airport below 1200 feet above ground level (AGL), and thereby remain clear of ARSA airspace. Nontower airports within the 5-mile core area present a more complex problem. It may be most practical to provide access to the airport by letter of agreement or other special arrangement with the ARSA controlling facility. However, in situations where safety, traffic flow, or pilot understanding would be enhanced, the FAA will consider permitting unrestricted access to the airport below 1200 feet AGL. In such situations, cutouts would be depicted on the representation of the ARSA's on aeronautical charts.

AOPA renewed its request, first made in the NAR task group, that the upper limit of the ARSA airspace be set at 3000 feet above airport elevation rather than 4000 feet as proposed. This issue was considered by the NAR task group, and has been reconsidered by FAA in light of the operational experience at Austin and Columbus. Based on the majority recommendation of NAR Task Group 1-2.2, the comments of other users, and the experience with the Austin, TX, and Columbus, OH, ARSA's, FAA has retained the 4000 foot cap. FAA considers it desirable to have mandatory participation up to 4000 feet above airport elevation for the type of airports that will be eligible for the ARSA airspace designation, and we do not believe it necessary or beneficial to make the cap compatible with the upper limit of the airport traffic area, as AOPA suggests.

AOPA requests that the lower limit of the ARSA shelf be set at 1200 feet above the highest terrain in the 10-mile radius, and that the floor not be segmented to follow variations in terrain. FAA agrees that any segmenting of the floor in the 5- to 10-mile area should be kept to a minimum, but we believe that some segmenting will be appropriate in certain terrain situations. Each proposal to incorporate a segmented base altitude will be subject to further comment in the airspace rulemaking for that location.

Representatives of the Soaring Society of America and several individual sailplane pilots requested that in areas where soaring is now conducted within the proposed ARSA, either the ARSA be modified or special procedures be developed to permit the sailplane operations to continue without complying with ARSA communication requirements. FAA does not believe that a national policy of modifying the standard ARSA configuration or procedures is warranted, given the relatively small number of locations at which soaring would be conducted within an ARSA. However, at some proposed ARSA locations it may well be the case that there is substantial sailplane activity conducted in the local area, and that those sailplane operations could be adversely affected by the establishment of an ARSA. In those cases, FAA is willing to consider special procedures to accommodate the soaring, including arrangement with the local ARSA controlling facility to operate without radio equipment at certain times and in certain prearranged areas, if control and separation of other aircraft is not adversely impacted. Procedures for any particular location would be developed during the proposal and comment process, and would be specific to that location.

Finally, several commenters addressed the nonregulatory 20-mile limit of the area in which ARSA services are provided by ATC, but in which user participation is not required. NBAA found the 20-mile perimeter acceptable, but suggested that the areas of two adjacent ARSA's be connected. This suggestion will be considered in the airspace rulemaking at appropriate locations. ALPA objected to the 20-mile limitation and requested that radar service be provided to the limits of the controlling facility's radar coverage, as implemented during the operational confirmation. For the reasons discussed in the NPRM, FAA continues to believe that the 20-mile perimeter provides a high level of service to participating aircraft consistent with the resources of the local ATC facility, and, because of its uniformity, minimizes pilots' confusion about the services available.

Required Equipment

ATA requested that altitude-encoding transponders be required in addition to two-way radios for operation in an ARSA. FAA does not believe that transponders are required to effect the purposes of the TRSA program, and does not intend to propose a requirement for transponders in ARSA airspace.

EAA and the Soaring Society of America both expressed concern that the use of 25 kilohertz (kHz) frequency spacing, made possible by 720-channel radios, would constitute a hardship for operators of small recreational aircraft having older 360-channel radio equipment. Because the rule requires two-way radio communications capability for operation in an ARSA, the use of the 25kHz spacing in ATC ARSA frequencies would effectively force these operators to upgrade their communications equipment. There is now a serious shortage of radio frequencies spaced at 100kHz intervals. The requirement for 720-channel radio capability for system users will likely increase independent of the ARSA airspace decision. At most of the locations for which ARSA's will be proposed, there is already a considerable demand for 720-channel radio capability, and FAA believes that the majority of aircraft using these airports already have this equipment. However, the extent that operators may need to install or upgrade aircraft radios at some potential ARSA sites will be assessed in the regulatory evaluation of a separate rulemaking proposing the designation of ARSA's at specific locations (see discussion in Economic Impact below).

Other Comments

A number of other comments were made concerning matters of operations under an ARSA, such as ATC procedures and the representation of ARSA's on aeronautical charts, which do not affect the substance or justification of the rule itself. FAA will take these comments into consideration in implementing designated ARSA's, but will not address them here.

ADOPTION OF NAR RECOMMENDATIONS

The FAA's action with respect to each of the aforementioned NAR recommendations is set forth below.

NAR 1-2.2.1 REPLACE TRSA's WITH ARSA's

While the adoption of this recommendation would indicate that the FAA is adopting all aspects of the other NAR recommendations addressed herein, the FAA has only adopted the aspect dealing with the discontinuance of TRSA's. The remaining aspects of this recommendation are treated individually. In that regard, all current TRSA locations will remain as such until they are cancelled or converted to ARSA's. Additionally, ATC procedures dealing with TRSA's will remain in place and aeronautical charts will continue to depict each TRSA until it is cancelled or converted.

NAR 1-2.2.2 ARSA SIZE AND OPERATING REQUIREMENTS

The physical dimensions of the ARSA and the operating requirements recommended by the task group are adopted except that the floors of the airspace between 5 and 10 miles may be segmented and will be expressed in altitudes above mean sea level instead of AGL because of variations in terrain elevations. This deviation is in the spirit of the task group's recommendations and every effort will be made to ensure that the ARSA airspace between 5 and 10 miles of each ARSA is not segmented except as necessary.

Additionally, some customizing of ARSA's may be required due to proximity of satellite airports and other regulatory airspace designations. However, customizing will be held to the absolute minimum required and the FAA foresees no situation that would necessitate extension of the ARSA airspace beyond 10 nautical miles.

NAR 1-2.2.3 OUTER AREA LIMITS AND OPERATING REQUIREMENTS

While the limit that was operationally confirmed at Austin, TX, and Columbus, OH, coincided with the extent of the approach control facility's delegated airspace, the FAA may not always have the resources or capability to provide the ARSA service to those limits. Further the FAA believes flexibility must be retained in establishing limits because of considerations which include: Proximity to TCA's; clustering of ARSA's; terrain; unusually high level of activity not related to the ARSA airport operation, and radio/radar coverage. Accordingly, the limits of the airspace outside each ARSA within which ARSA services are provided will be depicted narratively on sectional charts in a manner similar to the method used for the confirmation. The procedures for establishing the limits will be implemented under the FAA directive system; therefore, user organizations will have another opportunity to provide comments regarding this subject.

NAR 1-2.2.4 ATC SERVICES

The ATC services that the task group recommended the FAA provide within the ARSA will be provided as recommended, and will be implemented under the FAA directives system. The services provided by ATC through mandatory participation in the ARSA will be available to pilots on a voluntary participation basis in other specified areas within the approach control's area of jurisdiction. These services will be in addition to the services and separation currently applied to aircraft operating under IFR. Specifically, ATC will: (1) Resolve potential conflictions between aircraft operating under IFR and aircraft operating under VFR by ensuring that 500 feet vertical separation exists between those aircraft or by ensuring that those aircraft's radar targets do not touch; and (2) provide traffic advisory service and arrival sequencing to aircraft.

Where there is a satellite airport with an operating control tower within the ARSA, the airport traffic area of the satellite airport will overlap the ARSA airspace. The requirements of the adopted rules apply in such airspace. Pilots approaching a satellite airport with an operating control tower will be provided ARSA services until they are in two-way communication with the tower. Pilots approaching a satellite airport without an operating control tower will receive ARSA services until they are instructed to change to the appropriate airport frequency; however, general traffic information concerning observed radar targets will be provided by ATC in such cases. Pilots departing a satellite airport will receive ARSA services upon establishing two-way radio communications with the ARSA facility.

The provision of ARSA services at any location is dependent upon operation of the local ATC facility. Hours of facility nonoperation, when ARSA requirements and services would not apply, may be specified in airspace rules for individual sites or by Notices to Airmen.

NAR 1-2.2.6 AIRSPACE DESIGNATION CRITERIA

This recommendation is adopted. The following is a list of TRSA locations that are candidates for conversion to ARSA's. In some cases under this recommendation, more than one ARSA would be created from a single TRSA; for example, there are three airports within the Ontario, CA, TRSA—Ontario International, March Air Force Base (AFB), and Norton AFB airports—that would be candidates for individual ARSA's. However each specific ARSA airport will be addressed separately in an NPRM.

ARSA Candidate Locations:

Anchorage, AK
Mobile, AL
Little Rock, AR
Burbank, CA
Ontario, CA
San Diego, CA
Windsor Locks, CT
Jacksonville, FL
Tallahassee, FL
Columbus, GA
Kahului, HI
Boise, ID
Peoria, IL
Evansville, IL
South Bend, IN
Orlando, FL
Tampa, FL
Macon, GA
Cedar Rapids, IA
Champaign, IL
Rockford, IL
Fort Wayne, IN
Wichita, KS
Louisville, KY
Lake Charles, LA
Portland, ME
Kalamazoo, MI
Gulfport, MS
Charlotte, NC
Raleigh, NC

Lexington, KY
Lafayette, LA
Baltimore, MD
Grand Rapids, MI
Saginaw, MI
Billings, MT
Greensboro, NC
Omaha, NE
Reno, NV
Islip, NY
Syracuse, NY
Columbus, OH
Youngstown, OH
Portland, OR
Harrisburg, PA
Quonset Pt., RI
Greer, SC
Knoxville, TN
Amarillo, TX
Corpus Christi, TX
Midland, TX
Chantilly, VA
Roanoke, VA
Tacoma, WA
Milwaukee, WI
Birmingham, AL
Montgomery, AL
Phoenix, AZ
Monterey, CA
Palm Springs, CA
Santa Ana, CA
Daytona Beach, FL
Cincinnati, KY
Baton Rouge, LA
Shreveport, LA
Flint, MI
Lansing, MI
Jackson, MS
Fayetteville, NC
Lincoln, NE
Alburquerque, NM
Buffalo, NY
Rome, NY
Akron Canton, OH
Atlantic City, NJ
Albany, NY
Rochester, NY
White Plains, NY
Dayton, OH
Oklahoma City, OK
Allentown, PA
Toledo, OH
Charleston, SC
Bristol, TN
Memphis, TN
Austin, TX
El Paso, TX
San Antonio, TX
Norfolk, VA
Burlington, VT
Green Bay, WI
Charleston, WV
Huntsville, AL
Abilene, TX
Tucson, AZ
Oakland, CA
Sacramento, CA
Colorado Springs, CO
Ft. Lauderdale, FL
Pensacola, FL
W. Palm Beach, FL
Savannah, GA
Des Moines, IA
Moline, IL
Springfield, IL
Indianapolis, IN
Tulsa, OK
Erie, PA
San Juan, PR
Columbia, SC
Chattanooga, TN
Nashville, TN
Beaumont, TX
Lubbock, TX
Salt Lake City, UT
Richmond, VA
Spokane, WA
Madison, WI

NAR 1–2.2.7 CHARTING

This recommendation is adopted. Each ARSA will be depicted on aeronautical charts in a manner similar to the way Austin, TX, and Columbus, OH, locations are depicted.

NAR 1–2.2.8 EDUCATION

This recommendation is adopted to the extent set forth in Notice 84–22.

The Amendment

After consideration of the comments received, the FAA is adopting, with the exception of two editorial changes, the amendments to Parts 71, 91, 103, and 105 as they were proposed in Notice 84-22. The definition of an ARSA in new Section 71.14 has been revised for consistency with the definitions of other types of controlled airspace in Part 71. The revision has no effect on the operating rules for an ARSA or the extent of airspace involved. A second editorial revision was made to new Section 91.88. The phrase "or heliport" was deleted from the proposed section as unnecessary, because the term "airport" as defined in FAR Part 1, Section 1.1, includes heliports.

These amendments establish a new type of airspace assignment and prescribe operating rules for aircraft, ultralight vehicles, and parachute jump operations in that airspace.

Specifically, aircraft arriving at any airport in an ARSA, and overflying aircraft, prior to entering the ARSA must: (1) Establish two-way radio communications with the ATC facility having jurisdiction over the area; and, (2) while in the ARSA, maintain two-way radio communication with that ATC facility. For aircraft departing from the primary airport within the ARSA, two-way radio communications must be maintained with the ATC facility having jurisdiction over the area. For aircraft departing a satellite airport or heliport within the ARSA, as soon as practicable after takeoff, two-way radio communications must be established and thereafter maintained, while operating within the ARSA, with the ATC facility having jurisdiction over the area.

All aircraft operating within an ARSA are required to comply with all ATC clearances and instructions and any FAA arrival or departure traffic pattern for the airport of intended operation. However, the proposed rule permits ATC to authorize appropriate deviations to any of the operating requirements of the proposed rules when safety considerations justify the deviation or more efficient utilization of the airspace can be attained. Ultralight vehicle operations and parachute jumps in an ARSA may only be conducted under the terms of an ATC authorization.

Economic Impact

This action defines an ARSA and establishes air traffic rules for operation within the ARSA. Specific designations of individual ARSA's will be proposed in separate NPRM's. This amendment has no economic consequences. Rather, it is the airspace proposals which would implement this rule at specific sites that would have the economic impact, if any, at those sites. The FAA will provide a Regulatory Evaluation (an analysis of the economic impact), a Trade Impact Analysis (an analysis of the impact of the rule on foreign trade), and a Regulatory Flexibility Determination (whether a proposal has a significant economic impact on a substantial number of small entities) when an ARSA is proposed at specific sites.

Accordingly, the FAA has determined that: (1) The amendment does not involve a major rule under Executive Order 12291; (2) the amendment is not significant nor does it require a full Regulatory Evaluation under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) it is certified that under the criteria of the Regulatory Flexibility Act that the amendment will not have a significant economic impact on a substantial number of small entities. In addition, this amendment, if adopted, would have little or no impact on trade opportunities for U.S. firms doing business overseas, or for foreign firms doing business in the U.S.

This rule is published less than 30 days prior to its effective date of March 14. By separate rulemaking published this date, FAA has established ARSA's at Austin, TX; Columbus, OH; and Baltimore, MD, to take effect on March 14. March 14 is the next publication for enroute low altitude navigation charts published by the National Ocean Survey. Pilots rely on these charts for flight information, and FAA considers it a matter of flight safety that the implementation date for each ARSA coincide with the publication date of the air navigation chart depicting the ARSA. The permanent Austin and Columbus ARSA's and the Baltimore ARSA cannot be established unless this rule, which promulgates the definition and operating rules for ARSA's is in effect. If these ARSA's are not established on March 14, the next subsequent chart publication date, and the next date on which the three ARSA's could become effective, is in September. FAA considers the establishment of the ARSA at Baltimore Airport to be of immediate importance and cannot accept a 6-month delay in implementation of this ARSA. Furthermore, controller training, revised coordination procedures among adjacent ATC facilities, and equipment display modifications have been undertaken at all these locations in preparation for the March 14 effective date. A 6-month delay in implementation would have a disruptive effect on the ATC facilities involved. For these reasons, and in consideration of the fact that the final rule is substantially identical to the proposal, the FAA finds that good cause exists for making the rule effective less than 30 days after publication.

The Rule

For the reasons set out in the preamble, Chapter I of Title 14 of the Code of Federal Regulations is amended effective March 14, 1985.

(Secs. 307 and 313(a), Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354(a)); 49 U.S.C. 106(g) (Revised, Pub. L. 97–449, January 12, 1983); 14 CFR 11.45; and 14 CFR 11.65.)

Amendment 91-188
Use of Alcohol or Drugs

Adopted: December 13, 1984 **Effective: June 17, 1985**

(Published in 50 FR 15376, April 17, 1985)

SUMMARY: These amendments establish rules governing the use of alcohol or drugs by any crewmember assigned to perform duty during the operation of an aircraft. In addition to maintaining current provisions regarding the use of alcohol or drugs before serving as a crewmember, it delineates the maximum allowable blood alcohol content level. Crewmembers also will be required to furnish the Administrator with the results of any test that is performed that may indicate the percentage of alcohol in the blood or the presence of drugs in the body when such tests have been taken within 4 hours after acting or attempting to act as a crewmember. Failure to furnish or authorize the release of the results of these tests will result in certificate action or other sanctions. These rules are based, in part, on a National Transportation Safety Board determination that alcohol is a cause or factor in about 40 aircraft accidents annually, almost all of which are fatal. These amendments are intended to facilitate enforcement of the present drug and alcohol regulations and to reduce aircraft accidents and incidents attributable to consumption of alcoholic beverages and the use of drugs. For this same purpose, the FAA is proposing elsewhere in this issue of the *Federal Register* to require crewmembers to submit to tests for alcohol given by law enforcement officers under certain circumstances.

FOR FURTHER INFORMATION CONTACT: Mike Sacrey or Roger Baker, Federal Aviation Administration, General Aviation & Commercial Division, Operations Branch (AFO-820), 800 Independence Avenue, SW., Washington, D.C. 20591; Phone: (202) 426-8194.

SUPPLEMENTARY INFORMATION:

Background

Rules relating to the use of drugs and the consumption of alcoholic beverages in connection with aircraft operations are set forth in § 91.11 of the Federal Aviation Regulations (FAR) (14 CFR 91.11). This section provides that no person may act as a crewmember of a civil aircraft (1) within 8 hours after the consumption of any alcoholic beverage, (2) while under the influence of alcohol, or (3) while using any drug that affects the faculties in any way contrary to safety. "Crewmember" is defined in FAR Part 1 as "a person assigned to perform duty in an aircraft during flight time." A pilot, flight engineer, flight navigator, or flight attendant is such a person.

The National Transportation Safety Board (NTSB) has recommended that the FAA add an implied consent clause to the FAR and specify an alcohol level at which a pilot would be considered to be under the influence. The General Accounting Office (GAO) made similar recommendations in a Report to Congress by the Comptroller General entitled "Stronger Federal Aviation Administration Requirements Needed to Identify and Reduce Alcohol Use Among Civilian Pilots" (CED-78-58; March 20, 1978).

The FAA is concerned about the serious hazard, during aircraft operations, resulting from impairment of the pilot's faculties due to alcohol. Even small amounts of alcohol affect judgment, coordination, performance, and reaction time. Vision, hearing, touch, information processing, memory, reasoning, and attention span also may be affected by alcohol consumption. Inflight testing of experienced professional aviators has shown that even 40 milligrams percent by weight of alcohol in the blood exerts detrimental effects on performance which are incompatible with flight safety (Report on "The Effects of Alcohol on Pilot Performance During Instrument Flight" by Aviation Medicine Research Laboratory, Ohio State University; FAA Report No. FAA-AM-72-4). Moreover, the effects of alcohol on performance are additive to the expected hypoxic effects with increased altitude.

The ability of a crewmember to function without impairment of performance is an essential element in the safety of flight and in the effectiveness of the air traffic system. Since alcohol can affect the ability of a crewmember to function properly and thus is detrimental to aviation safety, the FAA must make every reasonable effort to prevent those who are under the influence of alcohol from flying.

For a number of years the FAA has expended a substantial amount of time and funds trying to educate the flying public to this danger. As part of this effort, the agency worked closely with groups such as the Aircraft Owners and Pilots Association and the Air Line Pilots Association to establish effective educational programs. Although these programs have been beneficial, the problem still remains. There continues to be a significant number of accidents each year where alcohol is found to be a factor or cause. For example, in 1979, according to an NTSB study, U.S. general aviation aircraft were involved in 34 accidents where alcohol impairment was a cause/factor, 30 of which were fatal. This represents an 88 percent fatality rate for alcohol-related accidents as compared to a 17 percent fatality rate for all of general aviation. In addition, in recent Congressional testimony, the FAA stated that there were 155 reported accidents from 1980 through 1982 in which evidence of drug carriage was found. Therefore, the FAA must take additional steps to reduce the frequency of these accidents by strengthening the rules relating to the use of alcohol and drugs.

The FAA published Notice of Proposed Rulemaking (NPRM) No. 81-9 on July 27, 1981 (46 FR 38480), proposing regulations that were intended to deter persons from acting or attempting to act as a crewmember while under the influence of alcohol or drugs and to provide a basis for necessary enforcement action. Seventy-four comments were received as a result of the NPRM. These amendments reflect both FAA consideration of those comments and its continuing responsibility to uphold and encourage safety in air commerce.

Blood Alcohol Content

Currently § 91.11(a) (1) and (2) provides that no person may act as a crewmember of a civil aircraft within 8 hours after the consumption of any alcoholic beverage or while under the influence of alcohol. In response to the recommendations from the NTSB and the GAO, Notice 81-9 proposed a further amendment to that section to prohibit acting as a crewmember while having 40 milligrams percent or more by weight of alcohol in the blood.

Some commenters oppose the proposed 40 milligrams, recommending that a level of 100 milligrams percent by weight, as used in many state motor vehicle statutes, be used instead. A number of other commenters agree that the proposed level is appropriate in view of the high performance required of pilots and the additive effects of alcohol at higher altitudes.

The FAR currently requires strict separation between alcohol and flying. The consumption of any alcohol within 8 hours before acting as a crewmember is prohibited. The FAA is adding a new prohibited level of alcohol which can be used to take enforcement action against a crewmember even where witness statements alone are insufficient to establish violations of the 8-hour rule or the under-the-influence rule. The FAA proposed a value of 40 milligrams percent by weight based on the latest and most extensive study and research, at the time of the proposal, into the amount of impairment induced by specific levels of alcohol content within the blood. Inflight testing of experienced professional aviators showed that 40 milligrams percent by weight of alcohol in the blood produced detrimental effects on performance that were incompatible with flight safety. Based on the available evidence, the FAA proposed that 40 milligrams percent by weight of alcohol in the blood be incorporated into the regulations. It is important to note, however, that it is possible to be under the influence of alcohol, or to have 40 milligrams or more percent by weight of alcohol in the blood, or both, more than 8 hours after consuming an alcoholic beverage.

Some commenters question what the term "40 milligrams percent by weight of alcohol" means, suggesting that a more common term be used. That term means 40 milligrams of alcohol in a sample of 100 milliliters of blood. This is equivalent to .04 percent alcohol in the blood. States, in their motor vehicle statutes, normally use percent to describe blood alcohol levels. The FAA agrees that it is appropriate to use a term which is more commonly understood. The rule, as adopted, thus expresses the prohibited blood alcohol level as ".04 percent."

Several commenters note that it is possible to have a blood alcohol level higher than .04 percent more than 8 hours after consuming an alcoholic beverage. This is true and is one reason why the "under the influence" provision and the ".04 percent" provision are needed in § 91.11 in addition to the 8-hour rule.

Breath Test

Notice 81-9 proposed criteria for requiring a crewmember to submit to a chemical test of the breath for blood alcohol levels. Such a test would have corroborated other evidence, such as a person's appearance or conduct, and it was anticipated that it would have aided in enforcing the regulations. The test would have been conducted by a representative of the Administrator on reasonable grounds to believe that the crewmember had violated § 91.11.

After further consideration, it appears that it would be impractical to have representatives of the Administrator equipped and trained to conduct the tests. As a number of commenters state, due to staffing levels and the large geographic areas covered by district offices, FAA inspectors are rarely able to respond to a report of a crewmember who is suspected of violating § 91.11 quickly enough to make a breath test useful. Breath testers would not be used often enough by FAA inspectors to warrant the expense of the testers and initial and recurrent training of the inspectors. There appears to be no practical method of requiring suspected violators to submit to a chemical test of the breath conducted by a representative of the Administrator. For this reason, the proposals requiring submission to a chemical test of the breath when requested by the Administrator and the consequences of refusal to submit to such a test are withdrawn.

Many commenters note that state and local law enforcement officers are often the first officials on the scene of an incident. Many state or local law enforcement officers are authorized, trained, and equipped to conduct, or are authorized to direct others to conduct, a chemical test of the breath or other test to determine the presence of alcohol or drugs in the body. The Administrator is proposing, in a supplemental notice of proposed rulemaking (published elsewhere in this *Federal Register*), that crewmembers be required to submit to such a test under certain conditions when requested by a law enforcement officer. This amendment allows the Administrator to request the results of these tests, as well as medical tests, based on reasonable ground for believing that the person acted, or attempted to act, as a crewmember of a civil aircraft in violation of § 91.11. The Administrator's ability to elicit the results of these tests should act as a positive deterrent to those persons who might otherwise attempt to act as a crewmember while under the influence of alcohol or drugs.

Attempting to Act as a Crewmember

Notice 81-9 also proposed to prohibit attempting to act as a crewmember under any of the criteria specified in § 91.11(a). Several commenters oppose this proposal, arguing that it may be difficult to establish when a person is attempting to act as a crewmember. However, circumstances do exist under which a person may be found to have attempted to act as a crewmember, such as when a person enters an aircraft to assume his or her duties as a crewmember while demonstrating by manner or physical indications that he or she appears to be intoxicated or under the influence of drugs. In such a case, an FAA inspector will not have the dilemma of choosing between trying to dissuade a person from acting as a crewmember or waiting for that person to actually execute his or her duties as a crewmember before a violation can be established.

One commenter questions whether flight attendants should be subject to the provisions of § 91.11, stating that there appears to be no history of accidents caused by flight attendants acting in violation of this section. As crewmembers, flight attendants should not be under the influence of drugs or alcohol while on duty since it could affect passenger safety. For this reason, flight attendants have been included in § 91.11 since it was first proposed. Their inclusion in this final rule is consistent with the purpose of the regulation.

Alcohol and Drug Test Results

Notice 81-9 proposed to amend § 91.11 to require that on the Administrator's request, a crewmember must furnish to the Administrator the results of any medical tests taken that indicate the level of alcohol in the blood or the presence of drugs in the body. The request would be made in the course of an enforcement investigation and would be based on reasonable grounds for believing that the person may have acted or attempted to act as a crewmember of a civil aircraft in violation of § 91.11(a). For a person to be required to submit the results of such a medical test, the test must have been given within 4 hours after the person acted or attempted to act as a crewmember. Substantial penalties were also proposed in §§ 61.16 and 63.12(a) for refusal to furnish the requested medical test results.

One commenter states that the 4-hour time period in which the medical test would have to be given is too long and suggests that a person should only be required to produce the results of tests conducted within 1 hour after acting or attempting to act as a crewmember. However, scientifically valid results can be obtained in the 4-hour time period proposed. Further, the 1-hour limit suggested would substantially reduce the usefulness of the rule since it is anticipated that it often will be more than 1 hour between the act and the time the test is taken. This amendment should allow the Administrator to obtain more easily the results of hospital or medical tests performed on a crewmember following an accident or incident.

As discussed under the section entitled "Breath Test," these amendments also allow the Administrator to request the results of tests conducted in accordance with Federal, state, or local laws if there is reason to believe the person may have violated § 91.11. Therefore, § 91.11, as adopted, requires that a crewmember furnish or authorize the release of the results of tests taken under the circumstances described. It should be emphasized, however, that the rules as adopted here do not permit the Administrator to require a person to submit to tests to determine the presence of alcohol or drugs. Note that this amendment does not in any way affect the Administrator's authority to request information under § 67.31 regarding a person's qualification for a medical certificate.

Eligibility After Drug Conviction

Sections 61.15, 63.12, and 65.12 currently provide that no person who is convicted of violating any Federal or state statute relating to the growing, processing, sale, disposition, possession, transportation, or importation of narcotic drugs, marihuana, or depressant or stimulant drugs or substances is eligible for any certificate or rating issued under Part 61, 63, or 65 for a period of 1 year after final conviction, and that such a conviction is grounds for suspension or revocation of any airman certificate (certificate action) issued under these parts. Notice 81-9 proposed amendments to these sections to provide that a conviction for the violation of a Federal or state statute relating to drugs would be grounds for disqualification or certificate action only when the violation involved the use of an aircraft. The proposal was an attempt to remove disqualification for those convictions that do not evidence a disposition towards the irresponsible exercise of airman privileges.

A number of commenters oppose these proposed amendments, stating that while an airman's violation of a drug statute may not have involved the use of an aircraft, it may still indicate a lack of the high standards of integrity, responsibility, and compliance attitude required of airmen. The FAA has reconsidered the proposal in the light of these comments. As indicated by several commenters, violations of the drug laws as set forth in the rule may indicate that the applicant would not be compliance-minded regarding the many safety rules in aviation. The courts have supported this view. The United States Court of Appeals for the Ninth Circuit affirmed the revocation of the private pilot certificate held by a man who had been convicted of possessing marihuana for sale. The court held that there was a rational relationship between a conviction for possessing drugs for sale and the potential for unsafe use of an aircraft for drug smuggling in the future. *Walters v. McLucas,* 597 F.2d 1230 (9th Cir. 1979). In another case, the United States Court of Appeals for the District of Columbia Circuit affirmed the revocation of the private pilot certificate of a person who had been convicted of conspiring to import marihuana, even though an aircraft had not been used in illegal or unsafe operations. This court held that there is a rational connection between past drug trafficking and future unsafe aircraft operations. *Rahm v. NTSB,* No. 74-1959 (D.C. Cir. Oct. 1, 1975) (memorandum opinion). The FAA agrees; therefore, this proposal is withdrawn to allow the Administrator to maintain his regulatory authority to take certificate action, when appropriate, against airmen who have been convicted of violating drug laws, whether or not that violation involved the use of an aircraft. This rule is consistent with the President's efforts to combat the illegal use and transportation of drugs.

Sections 61.15(a), 63.12(a), and 65.12(a) also currently make a person ineligible for a new certificate or rating for 1 year after final conviction. These sections make it mandatory that the Administrator deny an application for a new certificate or rating for 1 year after the date of the conviction. However, the current rule provides for but does not require the suspension or revocation of an existing certificate; rather, the Administrator may refrain from such action as appropriate. To provide this same flexibility to applicants for a new certificate or rating, the notice proposed to provide that such a conviction is "grounds for" denial rather than to provide a conviction makes the airman ineligible for a certificate. The intent of the proposal is adopted. By stating such a conviction "is grounds for" denial, the Administrator may use discretion in determining eligibility for a certificate or rating.

There appears to be some confusion over the wording of §§ 61.15(a), 63.12(a), and 65.12(a) regarding the phrase "period of up to 1 year after the date of final conviction." It was not clear to some commenters whether the 1-year period referred to the time in which an application could be denied by the Administrator (that is, in the nature of a statute of limitations) or to the maximum duration of the sanction. The proposal was meant to provide that the denial could last for up to 1 year after the final conviction but not beyond that date. The rule, as adopted, is reorganized to clarify this intent.

As proposed in Notice 81-9, §§ 63.12(b) and 65.12(b) did not provide that the commission of an act prohibited by § 91.11(a) or § 91.12(a) is grounds for revocation or suspension of a certificate or rating issued under Part 63 or Part 65, respectively. These provisions are contained in the current rule and were not intended to be removed. Therefore, §§ 63.12(b) and 65.12(b), as adopted, incorporate these provisions.

Notice 81-9 proposed, in §§ 61.16(b) and 63.12(b), a "minimum 1-year" suspension or revocation of a certificate issued under Part 61 or Part 63, respectively, for violation of § 91.11(c) or (d). The "minimum 1-year" is removed because it is inconsistent with the need for flexibility in enforcing the rule, as previously discussed.

Note that on October 19, 1984, the Aviation Drug-Trafficking Control Act was passed (Pub. L. 98-499). This act, in general, requires the Administrator to revoke the certificates of airmen who have committed certain Federal or state drug felonies involving aircraft. In those cases in which the new Act applies, its provisions will be used. In other cases, the current rules, as amended in this final rule, will apply.

Refusal to Carry Intoxicated Persons

Section 91.11(b) presently provides that, except in an emergency, no pilot of a civil aircraft may allow a person who is obviously under the influence of intoxicating liquors or drugs (except a medical patient under proper care) to be carried in that aircraft. Recognizing the difficulty of interpreting the word "obviously," Notice 81-9 proposed to clarify the rule by referring to a person who demonstrates by manner or physical indications that he or she is under the influence of intoxicating liquors or drugs.

Three commenters oppose the proposed changes in the wording of this regulation as it relates to alcohol. One commenter states that the proposed rule is too strict, since it indicates that a passenger who had only one or two drinks would not be permitted on board because that person would be "under the influence." This commenter suggests that the rule only prohibit boarding of passengers whom the pilot has reason to believe will be a danger, such as those who are violent or angry. Another commenter suggests that wording in § 121.575(c) of the FAR has been effective in its application to Part 121 air carriers and should be used in § 91.11(b). Section 121.575(c) states: "No certificate holder may allow any person to board any of its aircraft if that person appears to be intoxicated." The FAA agrees that the wording "appears to be intoxicated" is appropriate and is more likely to be correctly interpreted. The FAA has therefore added this phrase to the proposed rule and amended § 91.11(b) to provide that no pilot of a civil aircraft may allow any person who appears to be intoxicated, or who demonstrates by manner or physical indication that he or she is under the influence of drugs, to be carried aboard that aircraft.

Regulatory Evaluation

It is expected that these amendments will deter a person from acting or attempting to act as a crewmember while under the influence of alcohol or drugs and will prevent some accidents that might otherwise occur. The exact number, however, is impossible to calculate.

While there might be some minor costs incurred in obtaining the results of tests and submitting them to the Administrator, the economic benefits provided by increased deterrence are greater than the relatively small costs involved.

Conclusion

While a minor cost may be incurred by suspected violators if asked to furnish the results of tests, compliance with these amendments will not impose any other cost or economic burden on airmen. Accordingly, it has been determined that this is not a major regulation under Executive Order 12291. However, this rule is significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Since these amendments have a minor cost impact and apply to individuals rather than small entities, I certify that under the criteria of the Regulatory Flexibility Act, these amendments will not have a significant economic impact on a substantial number of small entities. A regulatory evaluation has been prepared for this action and is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

ADOPTION OF THE AMENDMENT

Accordingly, Parts 61, 63, 65, and 91 of the Federal Aviation Regulations (14 CFR Parts 61, 63, 65, and 91) are amended effective June 17, 1985.

(Secs. 313(a), 601, 602, and 609 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, 1422, and 1429), and 49 U.S.C. 106(g) (Revised, Pub. L. 97-449; January 12, 1983))

Amendment 91-189

Two-Way Radio Communications Failure Procedures

Adopted: July 26, 1985 **Effective: September 4, 1985**

(Published in 50 FR 31587, August 5, 1985)

SUMMARY: This action amends two-way radio communications failure requirements for operations conducted under instrument flight rules (IFR) to clarify when a pilot must leave a clearance limit and begin descent and approach. The amendment incorporates improved air traffic control (ATC) procedures now in use and provides pilots with more specific information on the actions to take in a communications failure situation.

FOR FURTHER INFORMATION CONTACT: Mr. Paul C. Smith, Airspace Air Traffic Rules Branch, ATO-230, Airspace-Rules and Aeronautical Information Division, Air Traffic Operations Service,Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; Phone: (202) 426-8783.

SUPPLEMENTARY INFORMATION:

History

On November 28, 1984, the FAA proposed Notice No. 84-20 (49 FR 46749) to amend § 91.127 of Part 91 of the Federal Aviation Regulations (FAR) (14 CFR Part 91) to clarify when a pilot must leave a clearance limit and begin descent and approach. The previous rule, § 91.127, provided that a pilot may expect to receive either an "expect further clearance time (EFC)" or an "expect approach clearance time (EAC)" when ATC issues holding instructions. In the event of two-way radio communications failure, a pilot predicates certain actions on an EAC or EFC if one or the other is received from ATC. However, effective January 21, 1982, ATC discontinued the use of EAC's and adopted a procedure that provides pilots with a more accurate and real-time delay information, and thus, a basis for simpler and more precise actions when they experience two-way communications failure. This new ATC procedure retains the traditional use of EFC's while providing pilots with the additional information on delays that may be expected (e.g., "EXPECT FURTHER CLEARANCE ONE TWO ONE FIVE ANTICIPATE ADDITIONAL TWO ZERO MINUTE DELAY AT (fix)"). This amendment brings the rule into line with ATC procedures which are based on the exlusive use of EFC's. Thus, this change clarifies and simplifies the rule by indicating the precise pilot responsibilities in terms of when to leave a clearance limit and when to begin the descent and approach. This amendment is the same as that proposed in the Notice.

Discussion of Comments

The FAA received four comments in response to the NPRM published on November 28, 1984. All four comments were supportive of the proposal.

The Rule

This amendment to Part 91 of the FAR clarifies and simplifies the rule and provides pilots a more precise course of action to follow when they experience two-way radio communications failure. The rule eliminates the use of "EAC" and retains the use of "EFC" which brings the rule into line with current ATC procedures.

The FAA has determined that this rule only involves a technical regulation which previously contained outdated procedures and for which this amendment was necessary to make it operationally current. It, therefore: (1) Is not a major rule under Executive Order 12291; (2) is not a significant rule under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

The Amendment

Accordingly, pursuant to the authority delegated to me, § 91.127 of Part 91 of the Federal Aviation Regulations (14 CFR Parts 91) is amended effective September 4, 1985.

Authority: 49 U.S.C. 1301(7), 1303, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471 through 1472, 1502, 1510, 1522, and 2121–2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat. 1180); 42 U.S.C. 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97–449, January 21, 1983); 14 CFR 11.45; and 49 CFR 1.47.

Amendment 91-190
Transponder-On Operation

Adopted: October 29, 1985 **Effective: December 2, 1985**

(Published in 50 FR 45599, November 1, 1985)

SUMMARY: This amendment requires all aircraft equipped with an operable radar beacon transponder to have the transponder turned on while airborne in the National Airspace System. This action is intended to enhance aviation safety by providing an increased degree of aircraft target visibility to radar controllers in air traffic control (ATC) facilities. A transponder-on environment is expected to help increase controller awareness and facilitate recognition and resolution of potential traffic conflict situations. This action does not require installation of transponders.

FOR FURTHER INFORMATION CONTACT: Mr Gene Falsetti, Airspace and Air Traffic Rules Branch, ATO–230, Airspace-Rules and Aeronautical Information Division, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, telephone (202) 426–8783.

SUPPLEMENTARY INFORMATION

HISTORY

On May 8, 1985, the FAA proposed to amend § 91.24 of Part 91 of the Federal Aviation Regulations (FAR) (14 CFR 91) to require that while in controlled airspace, each person operating an aircraft equipped with an operable ATC transponder maintained in accordance with § 91.172 of the FAR operate the transponder, including Mode C, if installed, and relay on the appropriate code or as assigned by ATC (50 FR 19381).

The preamble to the rule stated that aircraft positional information which is now readily available should be made available by requiring that transponders be turned on while aircraft are airborne within all controlled airspace. A transponder-on environment would enhance aviation safety by providing an increased degree of aircraft target visibility to radar controllers in ATC facilities and would help increase controller awareness and facilitate recognition and resolution of potential traffic conflict situations.

A transponder-on requirement was considered in the National Airspace Review (NAR). The NAR program is a comprehensive review of airspace use and procedural aspects of the ATC system. The NAR effort is a joint effort of the FAA, the Department of Defense, aviation industry and other government aviation agencies. NAR Task Group 2–3 convened in September 1984, and with the exception of a dissenting view by the Aircraft Owners and Pilots Assoication (AOPA), recommended adoption of a transponder-on requirement in the National Airspace System. Members of the task group making this recommendation represented the Air Transport Association (ATA), the Regional Airline Association (RAA), the National Air Transportation Association (NATA), the Department of Defense (DOD), the Air Line Pilots Association (ALPA), the Experimental Aircraft Association (EAA), the National Business Aircraft Association (NBAA), the Allied Pilots Association (APA), Transport Canada, AOPA, and the FAA. The NAR Task Group recommendation was formally approved by the NR Executive Steering Committee and forwarded to the FAA on December 4, 1984. In addition to the NAR recommendation, the Air Line Pilots Association (ALPA) included a transponder-on requirement in its list of proposed safety recommendations submitted to the FAA in late 1984.

In discussion of the proposal, the preamble noted that the FAA is aware that at certain times and in certain places a concentration of beacon targets could possibly confuse and interfere with the efficiency of ATC rather than assist it. Examples given were such occasions as high density fly-ins, space launches, or such operations as touch-and-go landings. The concentration of targets issue was similarly recognized by the NAR Task Group during its consideration of the proposal. However, the NAR Task Group determined that even if the situation did occur, controllers, would prefer to have the aircraft's transponder on, and it situations would exist where the transponder should be off, §91.24 of the FAR provides ample authority for controllers to so instruct pilots. Aware of a potential problem, the FAA noted in the preamble to the proposal that it was not the intent to create an inflexible requirement that could interfere with the efficiency of the National Airspace System or derogate ATC separation and advisory services. Accordingly, the proposal was designed so that it would not change the current operational environment. Under the proposal, controllers would continue to be able to ask pilots who were in communication with ATC to turn transponder off, or change transponder to "standby" or "low sensitivity." Consistent with the ATC procedures in effect, these actions could be taken to reduce clutter in a multi-target area or "ring around" or other phenomena.

It was also stated that it is not the intent of the proposal to change the application of §91.172 "ATC Transponder Tests and Inspections." This section states that no person may use an ATC transponder that is specified in Part 125, §91.24(a), §121.345(c), §127.123(b), §135.143(c) of this chapter unless within the preceding 24 calendar months, that ATC transponder has been tested and inspected and found to comply with Appendix F of Part 43 and certain other test and inspection requirements.

Comments were invited relative to situations when continued operations of the transponder could result in possible unsafe or inefficient operation of the National Airspace System.

COMMENTS

The FAA received 18 comments in response to the NPRM. Twelve commenters supported the proposal, including the National Transportation Safety Board (NTSB), NBAA, EAA, ATA, RAA, GAMA, ALPA, several airlines including Continental, Piedmont, US Air and CP Air, and an aviation consultant. Six commenters, including four private citizens, the Soaring Society of America, and AOPA opposed the proposed rule.

Two of the individual commenters contended the proposal would benefit only ATC and not the pilot. One commenter stated it would not help to have a transponder turned on and cited the Brownsville, Texas, area as an example because there the radar coverage only goes down to 5,000 feet. Another stated there is no guarantee that operating with the transponder on would enhance safety. The writer noted that ATC frequently calls out traffic that he never finds, and that ATC does not call out traffic that he sees. The same commenter likened the proposed rule to a speed trap which would make the pilot subject to civil penalties and suspension or revocation solely for not turning on a transponder. The same commenter went on to mention that he flew out of Gaithersburg, Maryland, which has a high volume of student training. Often there are five to eight aircraft in the pattern and since that traffic pattern has been raised into controlled airspace, the proposed rule would require all of the aircraft to have their transponders on while shooting takeoffs and landings. Further, only an exemption issued by FAA headquarters could relieve the flight schools from this requirement because their aircraft are not in contact with ATC. The commenter also said that the proposal would exacerbate radar problems of saturation, clutter, and ring around which would be caused primarily by pilots who would not be in radio contact with ATC. It was suggested that if FAA is nonetheless going to adopt the rule, it would need to be amended because it does not explicitly authorize a pilot to turn off a transponder when instructed to do so by ATC. The commenter maintained that the authority of ATC to assign a code does not include "stand-by" or "low" because neither of those is a code.

The Soaring Society of America, Inc., (SSA) stated that it concurs with FAA's intent but does not support the proposal. SSA reasoned that a transponder-on rule would cause pilots to be more careless by inducing them to neglect their primary responsibility of maintaining a visual watch in favor of relying on the use of transponders as a means of separating visual flight rules (VFR) traffic. SSA said that in its experience, it simply doesn't work.

AOPA did not support the proposal on the following grounds.

1. There is no persuasive evidence that large numbers of operators of aircraft equipped with transponders are not turning them on. It defies logic to assume that an aircraft owner would purchase expensive avionics and then intentionally not use them.

2. There is no assurance that operating with transponder on will enhance safety. Today, controllers who reach a level of traffic saturation selectively suppress the transponder emissions of VFR aircraft to reduce workloads. The proposed rule would encourage that practice.

3. Supplemental information in the proposal admits that concentrations of targets could confuse and interfere with the efficiency of ATC. There is no requirement that aircraft establish or maintain communications with ATC. Mandated operation of transponders increases the opportunity for a number of transponder problems to occur while reducing or eliminating ATC's control or resolution of such problems. In conjunction with this point, AOPA noted two possibilities:

(a) Saturation, clutter, and ring around may be exacerbated with no way for the controller to advise aircraft to stop squawk, squawk and stand-by, or change codes.

(b) Erroneous, conflicting, or malfunctioning codes emitted by transponders could not be corrected by the controller and not perceived by the operator.

4. The proposal is unenforceable and contradicts Administration efforts to reduce unnecessary regulation.

DISCUSSION OF COMMENTS

In summary, the nonconcurring commenters expressed the following concerns:

1. There is no assurance the rule would enhance aviation safety.

2. The benefits would accrue to ATC, not pilots. The pilot would not see an improvement in traffic advisory service. Further, the pilot would be subject to enforcement penalties for not turning the transponder on.

3. The radar operational environment would be adversely affected as follows:

(a) The rule would not be needed where radar coverage did not exist.

(b) Situations of radar clutter, ring-around, and other undesirable phenomena would increase.

(c) The controller would not be able to control or correct beacon malfunction and saturation problems because radio communications would not exist with many aircraft.

4. As written, the rule provides ATC authority to assign codes only.

5. The rule is unenforceable.

Safety/Benefits

The greater share of safety benefits from a transponder-on rule accrue to pilots and other users of the National Airspace System (NAS). Both visual and instrument flight rules (VFR/IFR) aircraft can be provided a higher degree of safety in the NAS through proper use of a transponder. Transponders substantially increase the capability of radar to "see" and aircraft. Improved visual acquisition enables the controller to quickly determine where potential traffic conflicts may exist. The intent behind the transponder-on rule is to increase controller awareness to facilitate recognition and resolution of potential traffic conflict situations. The acquisition of radar target information is basic to the provision of safety advisories which are a first priority duty of controllers. Therefore the FAA submits that while transponders help to improve the efficiency of ATC safety advisory service, the ultimate beneficiary of improved aviation safety is the airspace user.

The Radar Environment

The arguments raised over the perceived problems that would be encountered by ATC if mandatory use of transponders is initiated are suppositional and without supportive data. In one case, they appear to be contradictory. It was seen as inconceivable that aircraft operators would purchase expensive avionic equipment and not operate it, indicating that transponders were already on. However, the commenter went on the say that if a transponders were already on. However, the commenter went on to say that if a transponder rule were effected, radar saturation problems would occur, presumably as a result of the operation of transponders which are not left off.

With respect to the alleged radar saturation problem, the FAA noted in Notice No. 85-12 that it was not the intent of the proposal to create an inflexible requirement that could interfere with the efficiency of the National Airspace System or derogate ATC separation and advisory services. Accordingly, the proposal was specifically structured so that the current operational environment would be left intact, including continuation of the ATC deviation authority. The FAA does not expect that the rule would encourage the suppression of select transponder codes. In those instances when controllers have to selectively suppress certain codes, it is to reduce clutter over a particular area, but only temporarily. Code monitoring procedures will not be changed by this rule. During periods when ring around or excessive VFR target presentations derogate the separation of IFR traffic, the monitoring of the VFR code may be temporarily discontinued.

Code monitoring procedures are implemented independent of radio communications with aircraft. With respect to the issue of radio communications and transponders, controllers have the means to inhibit certain transponder codes, or all if necessary, but to date have no way to "turn on" a transponder in an aircraft with the transponder turned off. An aircraft with a transponder turned on, even when no communications have been established, is receiving a form of service from ATC in that the target is observed, and if necessary the traffic may be provided other aircraft that are in contact with ATC.

Rule Provisions/Effects

Contrary to the concerns of one commenter, the language of the amended rule does provide ATC authority to "stop squawk," "squawk low," or turn transponder off. New subparagraph (c) of §91.24 provides such broad authority by specifying that each person shall reply on the appropriate code or "as assigned by ATC." Again, the amended rule generates no change in the current practice or procedure.

There were a few comments that the rule would be unenforceable or, conversely, that it would trap pilots into enforcement actions. The purpose of this rule is the enhancement of aviation safety through the provision of an increased degree of aircraft target visibility to ATC radar controllers. The relative ease or difficulty of enforcing the rule was not a significant factor in adopting the rule, although the FAA does not agree that the rule could not be enforced. It is also the FAA's belief that pilots would have no valid reason to object to operating the transponder if such operation would assist ATC in providing improved detection and advisory service and that the effectiveness of the rule will result from voluntary compliance rather than enforcement.

With respect to the rule's effects, another concern was that it would induce pilots to relax their vigilance for other traffic. The FAA appreciates the psychology of this concern. However, the more obvious capability of the rule to enhance aviation safety outweighs the negative supposition which at best would be difficult to measure. Also, the transponder-on requirement has no effect on the requirement that places ultimate responsibility on the pilot for operation of the aircraft, and thereby, the safety of that flight.

Because this amendment generates no significant energy, cost, or other impacts on aircraft operators, this document involves a rulemaking action which is not a major rule under Executive Order 12291 and is not a significant rule under Department of Transportation Regulatory Policies and Procedures (44 FR 11034, February 26, 1979).

REGULATORY EVALUATION

The requirement that transponders already installed in aircraft be turned on while such aircraft are airborne in the National Airspace System will not have a significant economic impact on airspace users. The rule will not require the purchase, installation, or maintenance of any additional equipment nor will it require any additional recordkeeping. Only an imperceptible amount of additional electricity at negligible cost will be required to keep transponders in operation while the aircraft equipped with them are airborne. Because the impact of this rule is minimal, a full regulatory evaluation has not been prepared. For the same reasons, a transponder-on rule will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. While FAA has no estimate of the number, if any, of small entities which will be affected by the rule, the impact on individual operators is so minimal as not to meet the threshold of "significant impact" within the meaning of the Regulatory Flexibility Act. Therefore, it is certified that this rule will not have a significant economic impact on a substantial number of small entities.

THE AMENDMENT

Accordingly, Part 91, Subpart A of the Federal Aviation Regulation (14 CFR 91), is amended effective December 2, 1985.

AUTHORITY: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat 1180); 42 U.S.C. 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 21, 1983).

Amendment 91-191

Shoulder Harnesses in Normal, Utility, and Acrobatic Category Airplanes

Adopted: November 6, 1985 **Effective: December 12, 1985**

(Published in 50 FR 46872, November 13, 1985)

SUMMARY: The amendment to Part 23 of the Federal Aviation Regulations requires the installation of shoulder harnesses at all seats of normal, utility, and acrobatic category airplanes with a passenger seating configuration, excluding pilot seats, of nine or less, manufactured one year after the effective date of the amendment. The amendment to Part 91 of the Federal Aviation Regulations requires the pilot-in-command to brief passengers on how to fasten and unfasten their shoulder harnesses for both takeoff and landing in aircraft with installed shoulder harnesses. The amendment, also, requires each occupant to use a shoulder harness, if installed, for takeoff and landing. These amendments respond to the conclusions of an FAA Crashworthiness Study Report, to a petition for rulemaking from the General Aviation Manufacturers Association and to safety recommendations from the National Transportation Safety Board. These amendments will enhance the crashworthiness of small airplanes manufactured one year after the effective date of these amendments.

FOR FURTHER INFORMATION CONTACT: J. Robert Ball, Regulations and Policy Office (ACE-110), Aircraft Certification Division, Central Region, Federal Aviation Administration, 601 East 12th Street, Kansas City, Missouri 64106; telephone (816) 374-5688.

SUPPLEMENTARY INFORMATION:

REGULATORY HISTORY

These amendments are based upon a Notice of Proposed Rulemaking, Notice No. 85-11, published in the *Federal Register* (50 FR 19108; May 6, 1985). All comments received in response to Notice No. 85-11 were considered in adopting these amendments.

BACKGROUND

Amendment 23-7 to Part 23 of the Federal Aviation Regulations (FAR), (34 FR 13078; August 13, 1969) upgraded many airworthiness standards for small airplanes. Section 23. 785 was amended to require that each occupant must be protected from head injury by a safety belt and one of the following: (1) A shoulder harness to prevent the head from contacting any injurious object; (2) elimination of any injurious object within the striking radius of the head; or (3) an energy absorbing rest that would support the arms, shoulders, head, and spine.

On January 31, 1973, the FAA issued Notice No. 73-1 (38 FR 2985) proposing to amend Parts 23 and 91 of the FAR to require: (1) Shoulder harnesses for all occupants of newly certificated small airplanes; (2) shoulder harnesses for all occupants of small airplanes manufactured one year after the effective date of the amendments, regardless of the type certification basis of the airplane; and (3) all small airplanes in service with structural shoulder harness attachment provisions, to be equipped with shoulder harnesses within one year after the effective date of the amendment.

The final action on Notice No. 73-1, was supported by the following information: (1) Approximately 80,000 to 90,000 of the 130,000 U.S. registered small airplanes in service would have been required to add shoulder harnesses on the basis of existence of structural provisions; (2) the cost per seat for the installation of a shoulder harness would have varied from $20 to $200 for most airplanes, and installations made at the factory would mainly have been in the $20 to $40 per seat range; and (3) two percent of the then current airplanes would be equipped with shoulder harnesses, 50 percent of those shoulder harnesses would be used on a regular basis, and the increased availability of shoulder harnesses would have contributed significantly to occupant protection in an airplane accident.

As the final action on Notice No. 73-1, the FAA issued Amendment 23-19 to Part 23 and Amendment 91-139 to Part 91 (42 FR 30601; June 16, 1977). Amendment 23-19 requires the installation of shoulder harnesses for the front seats of all small airplanes for which an application for a type certificate is received after July 18, 1978. Amendment 91-139 requires the installation of shoulder harnesses for the front seats of small airplanes manufactured after July 18, 1978.

Section 23.785(j) was added to require, in part, that the cabin area surrounding each seat within striking distance of the occupant's head or torso be free of potentially injurious objects and, furthermore, if energy absorbing designs are used to meet this requirement, they must protect the occupant from serious injury when the occupant experiences the ultimate inertia forces set forth in § 23.561(b)(2).

The National Transportation Safety Board (NTSB) considered the new rules to be inadequate since the new requirements applied only to the front seats of airplanes and recommended installation of shoulder harnesses at all seats. In response to these safety recommendations, the FAA informed the NTSB that if was considering the feasibility of requiring the installation of shoulder harnesses at all seat locations and that the economic impact of the various options was being carefully assessed.

In December 1981, the FAA completed a benefit-to-cost analysis for the installation of shoulder harnesses in all general aviation airplanes. The analysis included nine alternatives for rulemaking action related to the installation and use of shoulder harnesses. The alternatives considered are cited as follows:

1. Amend Part 23 to require shoulder harnesses at all seats on newly certificated airplanes (extension of the current rule which requires shoulder harnesses at the front seats only).

Although this alternative would not have affected existing airplane designs, it would have imposed a future requirement for new airplanes regardless of whether the shoulder harness was used.

2. Amend Part 23 to require structural design provisions to accommodate the installation of shoulder harnesses at all rear seat locations on newly certificated airplanes.

This alternative would have provided the opportunity to install shoulder harnesses, at the owner's option, without the need for structural modification. This alternative would not have been applicable to airplanes being manufactured under provisions of a current type certificate.

3. Amend Part 91 to require a shoulder harness at all seat locations on new airplane models; that is, those new airplane models manufactured under an amended type certificate, within a certain time period after the effective date of the amendment. Time periods of 1, 3, and 5 years were considered for this alternative.

This alternative was similar to alternative 1, except that the scope was broadened to include airplanes manufactured under an amended type certificate and a transition period was provided.

4. Amend Part 91 to require structural provisions to accommodate shoulder harnesses at all seat locations on new airplane designs.

5. Amend Part 91 to require shoulder harnesses at all seat locations on newly manufactured airplanes after a specified date.

6. Amend Part 91 to require structural provisions to accommodate the installation of shoulder harnesses at all seat locations on all small airplanes within a specified time period.

7. Amend Part 91 to require the installation of shoulder harnesses at all seats on all small airplanes after a specified time.

All airplanes which did not have provisions for shoulder harnesses would have been required to be modified to meet the crashworthiness standards of Part 23.

8. Amend Part 91 to require structural provisions to accommodate the installation of shoulder harnesses at all seat locations on small airplanes prior to the time of reregistration.

This would have required sellers or buyers to modify the airplane before registration to the new owner.

9. Make no regulatory changes.

The FAA's Civil Aeromedical Institude (CAMI) completed a report in March 1982 entitled "Crashworthiness Studies: Cabin, Seat, Restraint, and Injury Findings in Selected General Aviation Accidents," Report No. FAA-AM-82-7. Numerous accidents were reviewed for features of crashworthiness and, in particular, for the injuries to the occupants in relation to the apparent severity of the impact and the performance of the cabin and occupant restraint systems.

In concluding the review, an estimate of the value of shoulder harnesses was made by the investigators. In the 47 accidents selected by further review, there were 136 persons involved. Eighty-seven (87) of these 136 were occupying a pilot or copilot seat, and it was estimated that 42 of the 49 occupants in rear seats would have had less severe injuries had shoulder harnesses been available and used. From this study, it is clear that shoulder harnesses enhance the crashworthiness of an airplane and reduce the possibility of serious or fatal injuries to occupants of other seats, in addition to those occupying the front seats.

A review of the 1981 Benefit-Cost Analysis and the CAMI Report indicated a varying positive benefit-to-cost ratio for alternatives 1, 2, and 7. Because alternative 7 is of such complexity and cost, and because some of the data upon which the 1981 study was based has changed, the FAA is conducting further study of this alternative before deciding if regulatory action is needed. Some of the factors which lead to the conclusion that further study was necessary are as follows:

1. The 1981 benefit-to-cost estimates the overall costs to be from $287 million to $328 million and more recent information indicates even higher costs.

2. The cost of shoulder harness installation can vary appreciably from one airplane to another. For example, the owner of an airplane manufactured without the attachment points for shoulder harnesses or whose airplane requires structural strengthening would have to bear significantly greater expense than an owner whose airplane only requires the installation of shoulder harnesses.

3. Rather than retrofit all seats, it may be more appropriate to retrofit only those seats where it can be done at reasonable cost or to retrofit only the front seats because these seats have a much higher occupancy rate than the rear seats and, correspondingly, the benefit-to-cost ratio will be significantly higher.

The FAA requested information from the public relating to the practicality of requiring the retrofitting of existing small airplanes with shoulder harnesses at all seats in Notice No. 85-11. In response to the request information, the FAA received little information either to support or to reject further rulemaking action on the retrofit issue.

Alternatives 1 and 2 were rejected because alternative 5, based upon new information and proposed in Notice No. 85-11, would provide much greater benefits than those in alternatives 1 and 2. In preparing the benefit-to-cost analysis for alternative 5 of the 1981 analysis, "Amend Part 91 to require the installation of shoulder harnesses at all seat locations on newly manufactured airplanes after a specified date," it was assumed that the cost would include the design, installation of provisions for shoulder harnesses, and the shoulder harness. Further, the actual installation cost of shoulder harnesses at each seat is now estimated at $150 to $250 per seat, because the attaching means for these shoulder harnesses will be provided in the affected airplane. Prior to developing Notice No. 85-11, the FAA was informed by the General Aviation Manufacturers Association, that after December 31, 1984, their newly manufactured small normal, utility, and acrobatic airplanes with a passenger seating configuration, excluding pilot seats, of nine or less, would have structural provisions incorporated and the member companies would be voluntarily installing shoulder harnesses where practical.

The GAMA manufacturers, which produce the majority of small airplanes, indicate that, except for airplanes purchased by Part 135 operators, they will, where practical, voluntarily provide structural provisions and install shoulder harnesses at all seat locations in these small airplanes. Accordingly, a review of the benefit-to-cost analysis has shown that alternative 5 would now have positive benefits relative to the estimated costs. Consequently, the FAA concluded that the objective of alternative 5 would be more economically viable than alternatives 1 or 2. The substance of alternative 5 was proposed in Notice No. 85-11. For those small airplane manufacturers, which are not members of GAMA, the one year compliance period requiring the installation of shoulder harnesses at all seat positions on newly manufactured small airplanes was considered a reasonable length of time.

DISCUSSION OF COMMENTS

In response to Notice No. 85-11, the FAA received comments from 19 interested persons. Most comments express agreement with the proposal.

One commenter states that, while favoring the proposal, amending § 23.785 addresses but one part of an overall absence of meaningful crashworthiness criteria within Part 23 of the FAR. This commenter contends the proposal is more form than substance until such time as the ultimate inertia forces set forth in § 23.561 are increased. The FAA does not agree with these remarks. Numerous studies by the FAA, NTSB, and others indicate that a significant improvement is made in small airplane crashworthiness by the installation and use of shoulder harnesses. While the Small Airplane Airworthiness Review Program (48 FR 4290, January 31, 1983), addresses the commenter's proposed increase in the ultimate static inertia forces of § 23.561(b)(2), a more appropriate course of action is to consider a dynamic testing requirement for seats and restraint systems simulating the survivable crash event and establishing criteria for occupant protection.

Two commenters contend that Technical Standard Order (TSO)-C22f, Safety belts, must be amended. One commendter states that TSO-C22f should be amended to require that the minimum standards for safety belt and shoulder harness systems be sufficient to restrain people equivalent to the 95th percentile man under foreseeable and survivable crash forces in a dynamic crash environment with due consideration for the geometry of each particular installation. The commenter also states, that a 500 percent increase in the specified values to which restraint systems are presently required to be designed and manufactured under a TSO would have minimum economic impact. The second commenter provides detailed changes to be considered in amending TSO-C22f. The FAA has a program to consider dynamic testing of seats within Part 23 of the FAR and shoulder harnesses in this respect are considered a part of the airplane seats. In addition, the FAA has a program to amend TSO-C22f.

One commenter notes that the language used by the National Highway Traffic Safety Administration (NHTSA) and the FAA is substantially different in the area of passenger restraint systems. The commenter suggests that conformity of the FAA rulemaking to terminology now used throughout the passenger restraint industry (i.e., pelvic restraint; upper torso restraint) would impact favorably on the introduction of occupant restraint systems currently existing into the aviation industry in a form more closely aligned with the state-of-the-art. The FAA is aware of the differences in terminology between NHTSA regulations and those proposed by the FAA with regard to occupant restraint systems. The FAA considered the use of the term "upper torso restraint" instead of the term "shoulder harness" in the proposal. Since many of the Federal Aviation Regulations use the term "shoulder harness" and the aviation community readily identifies with this terminology, the term "shoulder harness" is retained in these amendments.

One commenter suggests that the safety benefits of the proposed rule would be significantly enhanced by requiring that manufacturers make available, within one year following the effective date of the amendment, shoulder harness kits suitable to retrofit previously produced airplanes of types in current production with "upper torso restraint systems" capable of satisfying the amended rule. The commenter further recommends that a subsequent date should then be established (e.g., two years thereafter) upon which installation of such modification kits by all owners would become mandatory. However, another commenter recommends that the installation of shoulder harnesses on existing airplanes remain on a voluntary basis. This issue is one of the subjects of a current FAA study to determine the economic viability of alternative 7. Shoulder harness retrofit kits for all seats are presently available from the manufacturers of nearly all small airplanes. Upon completion of the FAA study, a decision will be made on whether to proceed with further rulemaking.

One commenter requests that the proposal be revised to provide for the installation of aft-facing or club seating arrangements in airplanes with a seating capacity of six or more without installing shoulder harnesses for aft-facing seats since the seat back must be designed to withstand the inertia forces prescribed in § 23.561(b)(2) to comply with § 23.785(j) of the FAR. The FAA disagrees. A shoulder harness on an aft-facing seat will provide lateral restraint in many airplane accidents where motion is not parallel to the longitudinal axis of the airplane and also provides rebound protection.

One commenter states that although no specific mention of side-facing seats is made in the regulations, it would appear that installation of shoulder harnesses on these type seats might enhance injuries when occupants are subjected to the inertia forces of § 23.561(b)(2), and, therefore, there should be other means of protecting occupants of side-facing seats. This commenter suggests a requirement similar to § 23.785(e), which is applicable to berths. The FAA recognizes that providing an equivalent level of safety on side-facing or club seats may present the designer a more difficult task than forward- or aft-facing seats. Furthermore, the commenter did not provide any information or data on how a level of safety could be provided that would be equivalent to that which would accrue from the installation of shoulder harnesses on forward- and aft-facing seats.

The FAA does not have adequate data to define safety provisions for side-facing seats or club seating equivalent to that afforded in a forward- or aft-facing seat with a shoulder harness and does not consider the berth requirements to be adequate for seats. This rulemaking action defines the occupant restraint requirement for forward- and aft-facing seats and, if an applicant chooses to provide different seating arrangements, that applicant must provide adequate data to substantiate that those seating arrangements provide an equivalent level of safety. The FAA is clarifying the requirements being adopted in § 23.785(g) by stating that for seat orientations other than forward- and aft-facing, the seat and restraint means must be designed to provide a level of occupant protection equivalent to that provided for forward- and aft-facing seats with safety belts and shoulder harnesses installed in normal, utility, and acrobatic category airplanes. Also, in light of the proposal to adopt a commuter category airplane within Part 23 as set forth in Notice No. (83-17 (48 FR 52010, November 15, 1983), the FAA plans to retain the standards in effect on the date of issuance of Notice No. 83-17 respecting seat and shoulder harness requirements for commuter category airplanes.

One commenter expresses a hope that, concurrent with the installation of shoulder harnesses at every seat, the manufacturers will make a serious attempt to improve the function and comfort of occupant restraint belts. This commenter contends that many shoulder harness designs are not well matched to the range of human body forms and are extremely uncomfortable, even during short term use. In addition, this commenter states many current designs do not easily allow scanning of the airspace by pilots for potential traffic since the shoulder harness is unnecessarily restrictive and does not allow significant upper torso movement. Another commenter, in opposing the proposal, recommended that the FAA expend an effort in getting a proper aviation restraining device for the pilot and copilot's seats of existing airplanes. The FAA recognizes that improvements could be made over currently installed shoulder harnesses and is, therefore, requiring compliance with the requirements of § 23.785(h) for the flightcrew member seats of all newly manufactured airplanes by adoption of new §§ 23.2 and 91.33(b)(14).

One commenter states that the current 40 percent usage rate of shoulder harnesses needs to be improved. This commenter recommends that § 91.14(a)(3) be amended to require each occupant to use that available shoulder harness for takeoff and landing. The

FAA agrees since the mere availability of shoulder harnesses does not achieve the purpose of having harnesses installed. Therefore, the FAA amends § 91.14(a)(3) as suggested by this commenter in order to achieve the level of safety intended by this rulemaking action. This commenter contends that a further improvement to safety could be made if each occupant were required, while en route, to keep the safety belt properly secured about his/her person while seated. The FAA agrees that this is a prudent practice but does not agree that the Federal Aviation Regulations should be amended to make this practice mandatory. Passengers can clearly visualize the need for properly secured restraint devices during takeoffs and landing, but cannot visualize such a need in routine nonturbulent flight. Requiring restraint devices to be secured without a clear and identifiable need would tend to dilute the effectiveness of the requirement of § 91.14(a)(3), as adopted by this rulemaking.

The previous commenter states that, at the present time, because shoulder harnesses are optional, seats and safety belts in combination or by themselves must accommodate the loads prescribed in § 23.561. Additionally, the commenter contends that since the shoulder harness can transfer large loads directly to the fuselage, the shoulder harness could possibly carry a large portion of the precribed $9g$ load in a particular seat/safety belt/shoulder harness system. When the shoulder harness is made mandatory, this commenter states, designers will be in a position to reduce the strength of the seat/safety belt combination and meet the standard on the basis that the combined seat/safety belt/shoulder harness system accommodates the precribed load. This commenter contends that the seat/safety belt combination, of itself, should continue to be required to withstand the precribed load of $9g$, as should the shoulder harness, and the entire seat/safety belt/shoulder harness system. The FAA agrees that there should not be a lowering of the strength requirements for safety belts regardless of their combination with shoulder harnesses. This amendment does not revise the safety belt strength requirements of § 23.1413, but adds the shoulder harness requirements to the airworthiness standards of § 23.785(g). In response to this comment, the FAA requires each safety belt and shoulder harness to comply with § 23.1413, which must meet the load prescribed in § 23.561(b)(2).

Two commenters oppose the proposal with regard to the installation of shoulder harnesses in newly manufactured airplanes to be operated in air commerce for compensation or hire, and in scheduled passenger operations pursuant to Part 135 of the FAR. One of these commenters contends that the FAA ignored that part of its petition for rulemaking which stipulated that the shoulder harness installation should not be applicable to airplanes operated in air commerce for compensation or hire under Part 135 with a passenger seating configuration, excluding pilot seats, of nine or less. In response to this comment, the FAA did not ignore that part of the petition which stipulated that shoulder harnesses should not be applicable to airplanes operated pursuant to Part 135. The FAA evaluated the merits of this aspect and concluded that, irrespective of the type of operation, all newly manufactured normal, utility, and acrobatic category airplanes with a passenger seating capacity, excluding pilot seats, of nine or less should have shoulder harnesses installed at all seat positions. Arguments presented by the commenters do not persuade the FAA that the proposal should be changed. In support of Notice No. 85-11, the FAA's report entitled, "Crashworthiness Studies: Cabin, Seat, Restraint, and Injury Findings in Selected General Aviation Accidents", which is cited in the background paragraph of this amendment, concluded that shoulder harnesses enhance the crashworthiness of an airplane, and, thus, reduce the possibility of serious or fatal injuries to occupants of other seats, in addition to those seats occupied by the pilot and copilot or other front seat passenger. The second of these commenters states that the United States regional and commuter airlines currently operate 721 airplanes of nine or less passenger seats in scheduled Part 135 passenger service, of which 219 are single-engine airplanes. In addition, this commenter states that four basic types account for 64 percent of all airplanes of this size: the Cessna 206/207 series, the Cessna 402/404 series, the Piper PA-31 piston engine derivatives, and the Britten-Norman Islander series. The commenter states that these airplanes are equipped by the manufacturers with "airline interior options" and are completed different from the normal interior options purchased by personal and business use customers. It is contended that because the commuter airlines presently operate a substantial number of airplanes of the affected size (as well as large airplanes) not equipped with shoulder harnesses, these operators do not want to introduce shoulder harnesses to their fleets. It is alleged that this reluctance is not due to a lack of awareness of safety, but rather stems from concern over the confusion and perceptions that will ensue among passengers boarding some commuter airplanes equipped with shoulder harnesses and some without shoulder harnesses. This commenter cites the safety records from the 1984 NTSB statistics as 1.14 accidents per 100,000 flight hours for scheduled Part 135 operations, 4.24 accidents per 100,000 flight hours for on demand air taxi Part 135 operations, and 9.82 accidents per 100,000 flight hours for general aviation operations. The FAA recognizes, as this second commenter states, that the safety record of Part 135 scheduled passenger operations has been substantially better than the safety record for other types of operation with airplanes having nine or less passenger seats. In additions, this commenter contends that airplanes of the same type have a greater utilization rate in both number of flights and number of passenger carried in scheduled Part 135 operations than does the same type of airplane used in personal or business use; however, the high rate of use in Part 135 operations relative to the same airplane models in general aviation use exposes a substantially larger number of people to the unlikely event of an accident. Therefore, the installation of shoulder harnesses at all seats provide an enhanced level of safety to a larger number of people for these airplanes when used in Part 135 operations. Relative to possible passenger confusion and perceptions among passengers relative to some airplanes having shoulder harnesses and some not having shoulder harnesses, the commenter did not state the nature of the anticipated confusion and perceptions and the FAA does not visualize any effect on the resulting level of safety—only the passengers might ask questions concerning the installation of the shoulder harnesses on new airplanes used in Part 135 operations. This same commenter also contends that the additional maintenance and passenger briefing effort would pose a very large burden on the Part 135 operators. This commenter presents neither information nor data to support this contention. The FAA does not agree that the installation of shoulder harnesses would impose any significant additional maintenance or briefing effort on Part 135 operators as maintenance and briefing efforts are presently required with respect to the safety belts in the affected airplanes.

One commenter contends that the implementation of the proposal is a gesture in futility disguised as safety and the only results will be more litigation directed at pilots and owners alleging neglect to properly brief passengers. This commenter states that there is no possible way of enforcing the requirements and wll be pressed to get passengers to do that which they do not have to do on a commercial carrier. The FAA does not agree. This commenter presented no information to support the contention of more litigation or that passengers will not use shoulder harnesses for takeoffs and landings when available. In addition, § 13.1 of the FAR addresses the issue of reporting to the FAA any known violation of any regulation or order issued pursuant to the Federal Aviation Aviation Act of 1958, as amended, and § 91.3 places the responsibility for operation of an airplane upon the pilot.

Another commenter states that the installation of shoulder harnesses in new airplanes is an unnecessary expense and the only thing that the proposal will do is raise the price of airplanes. The FAA does not agree that the installation of shoulder harnesses in new airplanes is an unnecessary expense because of the number of fatalities and serious injuries that will be prevented. With regard to raising the price of airplanes, those manufacturers which are GAMA members are presently installing on a voluntary basis shoulder harnesses at all seat positions and, therefore, no additional expense is being incurred that is not currently presently present in the price of new airplanes from these firms.

Sections 21.17 and 21.101 are amended to reference new § 23.2. These amendments are considered nonsubstantive, but are necessary to ensure that § 23.785, which is being made mandatorily retroactive, will be complied with and incorporated in the type certificate, amended type certificate, or supplemental type certificate, as appropriate. New § 23.2 could affect pending applications for type certificates at the time § 23.2 becomes effective. Also, compliance with § 23.2 for newly manufactured airplanes which were previously type certificated would require an amended type certificate or a supplemental type certificate. Accordingly, reference to new § 23.2 is needed in §§ 21.17 and 21.101.

The FAA is deleting the phrase "with a passenger seating configuration, excluding pilot seats, of nine or less" at the end of § 23.785(g), as stated in the notice. This phrase is redundant because of the general applicability of Part 23 with respect to the normal, utility, and acrobatic categories of airplanes, as set forth in § 23.1. New applications for a type certificate pursuant to Part 23 for normal, utility, and acrobatic category airplanes, is limited to airplanes with a passenger seating configuration, excluing pilot seats, of nine or less.

ECONOMIC IMPACT

The economic impact information provided below was prepared from the Final Regulatory Analysis.

It is estimated that the cost of a shoulder harness is about $150 to $250 per unit. The relatively high cost in relation to automobile seat belts is because of the low production volume and the requirement to carefully install the shoulder harness to make certain it is properly aligned. The life of a shoulder harness is estimated to be 10 years, depending on use, the timing of seat replacement, and the effects of sunlight on the belting material.

The benefit of a shoulder harness is the reduction in casualty loss attributable to the shoulder harness, that is, the number of lives and injuries saved by those using the shoulder harnesses who would have been killed or injured if they had not used the shoulder harness.

There were 480,000 passenger seats in the active general aviation fleet in 1981. There was an average of 607 passenger fatalities per year for the period 1979 through 1981. Therefore, the average fatality rate over the entire general aviation fleet was 126 per 100,000 seats.

The NTSB has conducted an analysis of 1982 accidents in which the utility of shoulder harnesses was evaluated. In these accidents, 40 percent of the occupants were wearing shoulder harnesses when available, and this was the estimate used for the calculation of benefits in the NPRM. Since this amendment revises the NPRM's proposal to now require each occupant to use the available shoulder harness for takeoff and landing, and because there has been an active education program by the general aviation community and the FAA to promote the use of shoulder harnesses, the FAA now estimates that shoulder harness use will increase to 60 to 80 percent. For the purpose of this analysis, 70 percent will be the estimated usage rate.

NTSB estimated that about 20 percent of the people killed could have survived if they had been wearing shoulder harnesses. Therefore, shoulder harnesses are likely to save about 17.6 people per 100,000 seats per year (70% of 20% × 126 fatalities per 100,000 seats). The FAA in 1984 valued a life at $670,000. Thus, over a 10 year period, the life of a shoulder harness, there would be a reduction in fatalities valued at $118 million for 100,000 seats. The cost of equipping these seats with shoulder harnesses is $20 million ($200 per seat × 100,000 seats). Since lives will be saved uniformly over the ten year period and the shoulder harness investment will be made in the first year, the benefit to cost ratio is about 3.5 taking into consideration the time value of money (the FAA uses 10%).

There was only one comment relating to the cost and benefits. One commenter indicates that Part 135 scheduled passenger operations is nine times safer overall than general aviation flying and, therefore, there was not as great a need for shoulder harnesses for this aviation segment. This comment was addressed in a previous section.

Additional detail relating to the economic impact can be found in the Regulatory Evaluation which has been placed in the docket.

TRADE IMPACT

This rule would have little or no impact on trade for both U.S. firms doing business in foreign countries and foreign firms doing business in the U.S.

In the U.S., foreign manufacturers would have to meet U.S. requirements, and, thus, they would gain no competitive advantage. In foreign countries, U.S. manufacturers can be competitive by either installing or not installing shoulder harnesses depending on requirements. There were no comments relating to trade impact.

REGULATORY FLEXIBILITY DETERMINATION

The Regulatory Flexibility Act of 1980 (RFA) was enacted by Congress to ensure that small entities are not unnecessarily and disproportionately burdened by government regulations. The RFA requires agencies to review rules which may have a significant economic impact on a substantial number of small entities.

The FAA's criteria for a small manufacturer is one with less than 75 employees, a substantial number is one which is not less than 11 and which is more than one-third of the small entities subject to the proposal rule, and a significant impact is one having an annual cost of more than $13,700 in 1984 dollars per manufacturer.

A review of the aircraft manufacturers indicates that there are less than eleven "small" manufacturers. In addition, members of the General Aviation Manufacturers Association (GAMA) are voluntarily installing shoulder harnesses and, therefore, this amendment will not impact these manufacturers whether large or small.

There were no comments relating to the initial regulatory flexibility determination.

CONCLUSION

The FAA has determined that this document involves regulations which are not considered to be major under the procedures and criteria prescribed by Executive Order 12291. However, this document is considered to be significant under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the regulatory evaluation prepared for this action is contained in the regulatory docket. A copy may be obtained from the person identified as the contact for further information. Furthermore, the FAA certifies that this regulation will not have a significant economic impact on a substantial number of small entities under criteria of the Regulatory Flexibility Act since few, if any, small entities are involved. In addition, this final rule will have little or no impact on trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States.

In consideration of the foregoing, the Federal Aviation Administration amends Parts 21, 23 and 91 of the Federal Aviation Regulations (14 CFR Parts 21, 23, and 91) effective December 12, 1985.

AUTHORITY: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat 1180); 42 U.S.C. 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

Amendment 91-192

Termination of Suspension of Amendment 91-157; Minimum Equipment Lists (MEL)

Adopted: December 6, 1985 **Effective: March 13, 1986**

(Published in 50 FR 51188, December 13, 1985)

SUMMARY: This amendment terminates the suspension of Amendment 91-157, published in the *Federal Register* on July 26, 1979 [44 FR 43714). As adopted, Amendment 91-157 permits general aviation operators of multiengine aircraft to obtain approval to operate their multiengine aircraft under certain conditions with certain instruments and equipment inoperable.

Comments must be received on or before February 11, 1986.

ADDRESSES: Send comments on the rule in duplicate to Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-204), Docket No. 14607, 800 Independence Avenue, S.W., Washington, D.C. 20591, or deliver comments in duplicate to: FAA Rules Docket, Room 916, 800 Independence Avenue, S.W., Washington, D.C. Comments may be examined in the Rules Docket weekdays, except Federal holidays, between 8:30 a.m. and 5 p.m,

FOR FURTHER INFORMATION CONTACT: John Lynch or Tom Stuckey, Project Development Branch, (AFS-850), General Aviation and Commercial Division, Office of Flight Standards, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, Telephone: (202) 426-8150.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to comment on this final rule by submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket and be submitted in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket, AGC-204, Docket No. 14607, 800 Independence Avenue, S.W., Washington, D.C. 20591. All comments submitted will be available in the Rules Docket for examination by interested persons. This amendment may be changed in light of comments received.

Commenters wishing the FAA to acknowledge receipt of their comments received in response to this rule must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 14607." The postcard will be dated and time stamped and returned to the commenter.

Background

On July 18, 1979 (44 FR 43714; July 26, 1979), the Federal Aviation Administration (FAA) issued Amendment 91-157, which added a new § 91.30 to Part 91 of the Federal Aviation Regulations (FAR) to permit the operation of multiengine aircraft with certain inoperable instruments or equipment using the provisions of an FAA-approved minimum equipment list (MEL). Amendment 91-157 was to become effective on November 1, 1979. On October 26, 1979 (44 FR 62884; November 1, 1979), the FAA suspended the effective date of Amendment 91-157 in response to a petition from the National Business Aircraft Association (NBAA). The NBAA petition noted that master minimum equipment lists (MEL's) were not yet available as a necessary basis for operators' MEL's and requested a delay of the effective date of Amendment 91-157 to enable the FAA to provide for timely development of adequate MMEL's and to make certain clarifying and necessary changes in the rule to correct deficiencies that the petitioner believed would confuse the public.

On September 16, 1981, the FAA issued Notice of Proposed Rulemaking (NPRM) No. 81-14 (46 FR 52278; October 26, 1981), which proposed, in part, to terminate the suspension of effectivity of § 91.30 by revising § 91.30(a) to extend its applicability to both single- and multiengine aircraft. This amendment does not adopt § 91.30 as proposed in NPRM 81-14 since its proposed applicablility to single-engine aircraft is currently the focus of continued study by the FAA.

Since November 1979, approximately 70 MMEL's have been developed for small multiengine aircraft. The recent availability of such MMEL's has encouraged general aviation multiengine aircraft operators to develop workable MEL programs. However, with the effectivity of § 91.30 suspended, Part 91 multiengine aircraft operators have been unable to benefit from the MMEL's and MEL's recently developed. As a result, Part 91 operators have applied to the FAA in increasing numbers for exemptions from the FAR to the extent necessary to permit them to operate their multiengine aircraft using an FAA-approved MEL. In response, the FAA has issued over 200 exemptions to permit Part 91 operators to conduct operations using an MEL, and numerous petitions for similar relief are pending at this time. Based on the satisfactory experience obtained with the exemptions that have been granted to date, the FAA has concluded that the MEL concept can be conducted under FAR Part 91 in large or complex multiengine aircraft and in small multiengine aircraft without adversely affecting aviation safety.

If an FAA-approved MMEL has been developed for a particular aircraft, the MMEL may be used as the primary document from which the operator may develop an MEL for a specific model. To facilitate the use of the MEL, each operator must carry a current approved copy of the MEL aboard the aircraft. This will enable the pilot to determine if the aircraft meets regulatory requirements with instruments or equipment temporarily inoperative and will provide the appropriate procedures and limitations that must be followed to ensure the safe operation of the aircraft until the instruments or equipment can be repaired.

The FAA realizes that determination of the suspension of Amendment 91-157 does not extend the applicability of § 91.30 to operations of single-engine aircraft under Part 91 but cannot reasonably continue the suspension of § 91.30 considering the recent development and availability of MMEL's and MEL's for numerous multiengine aircraft.

There are identifiable benefits associated with the use of MEL's for multiengine aircraft operated under Part 91. Many aircraft have installed equipment that is not essential for safe operations under all operating conditions. Much of this equipment is required for certain kinds of operations such as night, instrument flight rules (IFR), or in icing conditions. Other equipment such as weather radar, inertial navigation systems, entertainment systems, and galley equipment may be installed in the aircraft for the operator's or passenger's convenience. If some temporary deviation from the type-certificated configuration and equipment required by the operating rules were not permitted, the aircraft could not be flown unless all such equipment was operable. Experience had proven that the operation of every system or component installed on the aircraft is not always necessary when the remaining operative instruments and equipment provide for continued safe operations for a brief period of time until the systems or component can be repaired.

In complying with the applicable airworthiness requirments of Parts 21 and 91 of the FAR, operators subject to the operating rules of Part 91, have sometimes been burdened with delays and increased costs attributable to the need to expeditiously repair or replace inoperable instruments or equipment which, under the circumstances existing at the time, were not needed in the interest of safety. To alleviate the burden placed on multiengine aircraft Part 91 operators because of the lack of authority to use MEL's and the large number of exemption requests being processed concerning use of MEL's by Part 91 operators, the FAA has determined that the suspension of effectivity of § 91.30 should be terminated without further delay.

Good Cause Justification for Making This Rule Effective without Futher Public Comment

Because Amendment 91-157 was adopted after full public participation as required by the Administrative Procedure Act, and because this action reinstates its effectivity with no substantive change, the FAA has determined that this action is appropriate without further delay. The underlying rationale for the rule and the issues involved are the same. Those issues were addressed at the time Amendment 91-157 was adopted. The practical impediment to application of the rule cited as the reason for its suspension (absence of MMEL's) has been removed. Because of this and since no additional burden is being placed on any person, additional notice and public procedures are impracticable and unnecessary.

Paperwork Reduction Act

Information collection requirements in this regulation (§ 91.30) have been approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511) and have been assigned OMB Control Number 2120-0522.

Conclusion

This amendment reinstates previously adopted Amendment 91-157 and therefore permits operators of multiengine aircraft who elect to develop and obtain FAA-approved MEL's to operate their aircraft with certain instruments and equipment temporarily inoperable. This amendment merely reinstates the effectivity of an amendment adopted in 1979. Since that time, circumstances have heightened the need for this amendment's effectivity consistent with the economic costs and benefits discussed in the Regulatory Evaluation prepared for Amendment 91-157. As indicated in that Regulatory Evaluation, there are operational costs of the status quo to Part 91 operators which are unnecessary, and the adverse economic costs of this amendment are minimal or nonexistent. Accordingly, it has been determined that this document does not involve a rule change that is major under Executive Order 12291 or significant under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Although numerous small operators may be impacted by this amendment, the impact, if any, will be minimal since the costs of operating pursuant to § 91.30 do not exceed the FAA's threshold cost for "significant economic impact." For the reasons stated below, under the criteria of the Regulatory Flexibility Act, I certify that this regulation will not have a significant economic impact of a substantial number of small entities.

THE AMENDMENT

Accordingly, Parts 11 and 91 of the Federal Aviation Regulations (14 CFR Parts 11 and 91) are amended, effective March 13, 1986.

Authority: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat 1180); 42 U.S.C. 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 21, 1983).

Amendment 91-193

Change in Airspace Definition of Minimum Navigation Performance Specification

Adopted: December 6, 1985 **Effective: December 13, 1985**

(Published in 50 FR 51193, December 13, 1985)

SUMMARY: This amendment of the Federal Aviation Regulations (FAR) will change the FAA description of North Atlantic (NAT) Minimum Navigation Performance Specification (MNPS) airspace to coincide with the International Civil Aviation Organization's (ICAO) description of the NAT MNPS airspace. This amendment is necessary since ICAO action moved the northern boundary of the NAT MNPS airspace from latitude 67 degrees north to the North Pole, and made several minor editorial changes.

FOR FURTHER INFORMATION CONTACT: John Lynch, Project Development Branch (AFO-850), General Aviation and Commercial Division, Office of Flight Operations, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, telephone: (202) 426-8150.

SUPPLEMENTARY INFORMATION:

Background

On August 24, 1983, ICAO revised the NAT MNPS airspace boundaries as follows:

The MNPS airspace shall be applicable in that volume of airspace between FL 275 and FL 400 extending between latitude 27 degrees north and the North Pole, bounded in the east by the eastern boundaries of control areas Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik and in the west by the western boundary of CTA Reykjavik, the western boundary of CTA Gander Oceanic, and the western boundary of CTA New York Oceanic excluding the area west of 60°W and south of 38°30″N.

At present, Appendix C, Section 1 of Part 91 of the FAR defines NAT MNPS airspace as follows:

SECTION 1. NAT MNPS airspace is that volume of airspace between FL 275 and FL 400 extending between latitude 27 degrees north and latitude 67 degrees north, bounded in the east by the eastern boundaries of flight information regions Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik and in the west by longitude 60 degrees west within flight information region New York Oceanic, the western boundary of flight information region Gander Oceanic, and the western boundary of flight information region Reykjavik.

This amendment to Appendix C, Section 1 of Part 91 changes FAA's description of the boundaries of NAT MNPS airspace to be consistent with ICAO's description of the boundaries of the airspace. This amendment would change the words "latitude 67 degrees north" to read "the North Pole" . . . and would make other minor editorial changes. Also, the ICAO language refers to Control Areas as "CTA." Because there is no definition of "CTA" in the FAR, the term "Control Area" is spelled out.

Need for Immediate Adoption

The orderly flow of traffic over the airspace of the North Atlantic depends, in large part, on the use of standardized procedures by all ICAO member aircraft. The enlargement of NAT MNPS airspace boundaries by ICAO was intended to allow reduced spacing for transatlantic flights to accommodate increased aircraft traffic. The working of this system requires that operators of U.S. registered aircraft comply with rules which are consistent with ICAO rules. This means that the boundaries of NAT MNPS airspace set forth in Part 91 must be the same as those set by ICAO. Currently, most U.S. operators that fly in the NAT MNPS airspace are aware of the ICAO rules and ICAO's NAT MNPS airspace boundaries, and their aircraft and operations comply with the ICAO requirements. Those U.S. operators whose aircraft are not equipped with the navigation equipment required by § 91.20 may receive special authorization from the FAA to deviate from those requirements and use specific routes for crossing the North Atlantic. Futhermore, U.S. operators can avoid the NAT MNPS airspace by flying below or above the airspace without specific FAA authorization.

Basically, this change to Appendix C, Section 1 of Part 91 will not have any significant impact to U.S. operators. This amendment merely revises Part 91 to show the current NAT MNPS airspace boundaries.

Therefore, public comment on this amendment is not likely to be helpful and would delay bringing Part 91 into conformance with ICAO rules. In light of this, I find that notice and public comment are unnecessary and contrary to the public interest. I also find good cause for making this amendment effective less than 30 days after publication.

CONCLUSION

By adopting the same description of the NAT MNPS airspace boundaries as now defined in the ICAO's "Regional Supplementary Procedures" document No. 7030/3 dated March 14, 1984, this amendment will show the current NAT MNPS airspace boundaries. The FAA has determined that this amendment is not major under Executive Order 12291 or significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). For the reasons discussed above, it also has been determined that the anticipated economic impact is so minimal that a full regulatory evaluation is not necessary.

ADOPTION OF THE AMENDMENT

Accordingly, Part 91 of the Federal Aviation Regulations (14 CFR Part 91) is amended effective December 13, 1985.

Authority: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat 1180); 42 U.S.C. 4321 et seq.; E.O. 11514; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 21, 1983).

Amendment 91-194

Submission to Alcohol Tests

Adopted: January 2, 1986 **Effective: April 9, 1986**

(Published in 51 FR 1226, January 9, 1986)

SUMMARY: These amendments establish rules requiring aircraft crewmembers to submit to chemical tests for alcohol given by law enforcement officers under certain conditions. It is based, in part, on the National Transportation Safety Board (NTSB) determination that alcohol is a cause or factor in a significant number of aircraft accidents annually, many of which are fatal. The proposed amendment would facilitate the enforcement of the present alcohol regulations. It is intended to reduce aircraft accidents and incidents attributed to consumption of alcoholic beverages.

FOR FURTHER INFORMATION CONTACT: Thomas E. Stuckey or John Lynch, Federal Aviation Administration, Office of Flight Standards, General Aviation and Commercial Division, Project Development Branch (AFS-850), 800 Independence Avenue, S.W., Washington, D.C. 20591; telephone (202) 426-8150.

SUPPLEMENTARY INFORMATION:

Background

Rules relating to the consumption of alcoholic beverages in connection with aircraft operations are set forth in § 91.11 of the Federal Aviation Regulations (FAR)(14 CFR 91.11). This section provides that no person may act as a crewmember of a civil aircraft within 8 hours after the consumption of any alcoholic beverage, while under the influence of alcohol, or while having a blood alcohol level of .04 percent or more by weight.

"Crewmember" is defined in Part 1 of the FAR as "a person assigned to perform duty in an aircraft during flight time." This includes a pilot, flight engineer, flight navigator, or flight attendant.

The FAA is concerned about the serious hazard, during aircraft operations, resulting from impairment of the crewmembers' faculties due to alcohol. Even small amounts of alcohol affect judgment, coordination, performance, and reaction time. The FAA and other organizations have been quite successful in using educational programs to lower the accident rate due to alcohol abuse. In 1971, alcohol abuse was a contributing cause in 12.6 percent of the fatal general aviation accidents. Since then, the alcohol-related accident rate has declined steadily. In 1984, alcohol abuse was involved in only 4.8 percent of the fatal general aviation accidents.

Despite this progress resulting from the time and money which the FAA and other aviation organizations have devoted to their educational programs, alcohol abuse is still unacceptably high. Alcohol remains a factor or cause in a significant number of accidents each year. For example, in 1979, the National Transportation Safety Board (NTSB) investigated 34 general aviation accidents where alcohol impairment was determined to be a cause/factor; 30 of the 34 accidents were fatal.

On April 17, 1985, the FAA published a rule (Amdt. Nos. 61-74, 63-23, 65-29, and 91-188, 50 FR 15376) that established that no person may act as a flight crewmember with a blood alcohol level of .04 percent by weight or more. This rule is in addition to the current § 91.11 which prohibits any person from acting or attempting to act as a crewmember aboard a civil aircraft within 8 hours after the consumption of any alcoholic beverage or while under the influence of alcohol. This rule may be used to initiate enforcement action against a crewmember where witness statements alone are insufficient to establish a violation of the 8-hour rule or the under-the-influence rule. The rule also requires the crewmembers to furnish the Administrator with the results of any test that is performed that may indicate the percentage of alcohol in the blood when the tests have been taken within 4 hours after acting or attempting to act as a crewmember. Failure to furnish or authorize the release of the results may lead to sanctions.

When the FAA first proposed the rule, the agency intended to have FAA representatives conduct the alcohol tests. After further consideration, however, the agency decided that it would be impracticable to have representatives of the Administrator equipped and trained to carry out such tests. As a result, the FAA issued Supplemental Notice of Proposed Rulemaking (SNPRM) No. 81-9A (50 FR 15381, April 17, 1985), proposing that a crewmember of a civil aircraft be required in certain circumstances to submit to testing to indicate the percentage by weight of alcohol in the blood. Under the proposal, compliance with the request of a law enforcement officer, who was authorized under State or local law to conduct or otherwise obtain such a test, would be required if there was a reasonable basis to believe that the crewmember may have unlawfully used alcohol in connection with his or her crewmember duties. The proposal also made it clear that failure to submit to the test could result in denial of a new certificate or a rating or suspension or revocation of a certificate or rating. In addition, civil penalty action could be taken against the crewmember. Flight attendants, who do not hold airman certificates, would be subject to civil penalty action.

Under the proposal, the law enforcement officer conducting or obtaining the test would be acting under his or her own State or local authority. The Administrator did not propose to grant additional authority to State or local law enforcement officers. The rule would merely require the crewmember to cooperate with an otherwise lawful investigation by a law enforcement officer.

Fourteen comments were received as a result of the SNPRM. While all the commenters support the purpose of the proposed rule, some have reservations about parts of the rule. After considering the comments, the FAA has decided to adopt the rule with some changes which are discussed below.

Several commenters, including the NTSB, question the effectiveness of the rule until all states have "flying while impaired" rules. At present, 37 States have such rules. The FAA recognizes that this is a problem and will urge the remaining 13 States to enact such laws. Enough States, however, have such laws now to make this rule useful. The FAA has discussed the proposed rule with several organizations which represent state aviation officials and law enforcement officials. These groups generally expressed support for the proposed rule, stating that their members agree that it would be a useful tool in our collective efforts to combat the use of alcohol in aviation.

A number of commenters raise legal questions. One commenter asks whether the penalties for failing to submit to a test would be mandatory or whether the FAA would have discretion in each case. Notice 81-9A proposed making a refusal to submit to the test "grounds for" suspension or revocation of an airman certificate. Notice 81-9A proposed to make a person who refused to submit to an alcohol test ineligible for a new airman certificate or type rating for a period of a year after the date of the refusal. As proposed, the FAA would have had no choice but to deny an applicant who had refused to submit to a test within the previous year. On further consideration, the FAA has decided it is advisable to have some flexibility in applying this rule. Accordingly, the rule as adopted makes the refusal to submit to the test "grounds for" denying a new certificate or rating. In the case of a refusal to submit to an alcohol test, however, the FAA anticipates that it generally will order the revocation of a certificate held or deny an application for a certificate or rating for up to 1 year.

Several commenters ask questions about the legal procedures by which the rule will be enforced. Some appear to believe that a refusal to submit to an alcohol test would result in immediate suspension or revocation of the crewmember's airman certificate. The statutory procedures by which the FAA may suspend or revoke certificates provide full procedural safeguards.

If a crewmember refused to submit to an alcohol test under the circumstances of this rule, the FAA could issue an order suspending or revoking the crewmember's airman certificate, or could seek to collect a civil penalty for the violation, or could deny any application for a new certificate or rating for up to 1 year after the refusal, or could use a combination of these sanctions. In non-emergency cases, before the FAA issues an order of suspension or revocation, it notifies the airman of the charges and gives him or her the opportunity to be heard. If, after this notice, the FAA issues an order of suspension or revocation, the crewmember may appeal to the NTSB under § 609 of the Federal Aviation Act of 1958, as amended (FA Act). If the airman appeals to the NTSB, a non-emergency order does not become effective unless and until the NTSB affirms the FAA order. If the FAA issues an emergency order, the airman must surrender his or her certificate immediately, but may appeal to the NTSB and obtain an expedited review of his or her case. Under these circumstances, the NTSB must then complete its review within 60 days.

Except for denials during suspension or within 1 year after revocation, a person who is denied an airman certificate or rating may petition the NTSB to review the denial under § 602 of the FA Act. As with all denials for failure to meet eligibility requirements, the FAA does not issue a certificate to an applicant whom it has determined is disqualified unless and until the NTSB reverses the denial.

One commenter asks whether the test result would be deemed conclusive. As with all evidence, a breath test, urine test, or other test for blood alcohol level would have to be sufficiently reliable to be used as evidence of a violation. Except for emergency cases, prior to issuing the order, the FAA would give the crewmember the opportunity to answer the charges and be heard as to why the blood alcohol level (or any other evidence) should not be used to prove a violation of the alcohol rules. If the FAA should use the results of a blood alcohol test, the crewmember in all cases would have the opportunity, during an appeal to the NTSB, to prove that the test was not reliable. This would be true if the test were used to prove that the crewmember had acted or attempted to act as a crewmember with .04 percent by weight or more alcohol in the blood in violation of § 91.11(a)(4), or used to help prove that the crewmember had acted or attempted to act as a crewmember within 8 hours after the consumption of an alcoholic beverage or while under the influence of alcohol in violation of § 91.11(a)(1) or (2).

Several commenters appear to assume that an alcohol test conducted as described in this rule would be the only kind of alcohol test that FAA might use to prove blood alcohol levels. This is in error. The FAA has used alcohol tests in the past to prove blood alcohol content. The FAA will continue to use any alcohol test, such as one conducted by a hospital or by a law enforcement officer, which is sufficiently reliable. For instance, if a law enforcement officer tested a crewmember while investigating a suspected violation of State law not connected with aviation, the FAA could use the test if the agency had evidence to show that the test reliably indicated the crewmember's blood alcohol level while he or she was acting or attempting to act as a crewmember. The rule adopted here deals with the circumstances under which a crewmember must submit to a test or face FAA penalties. The rule does not limit which alcohol tests may be used to prove that the crewmember violated the alcohol rules.

Two commenters believe constitutional vagueness problems exist with the phase "law enforcement officer." The proposed rule referred to a "test which the officer is authorized to obtain under state or local law." The preamble identified the officer as one who is authorized under state or local law to conduct or otherwise obtain a test indicating blood alcohol level. The rule as adopted also identifies the law enforcement officer as one who is "authorized under State or local law to conduct the test or to have the test conducted." In their statutes, the States refer to persons with this authority by such names as "officer," "law enforcement officer," "police officer," and "peace officer." The term used in the rule can be understood by the ordinary person and therefore is not vague.

Several commenters object that the FAA is delegating its authority to State and local governments. These comments reveal a fundamental misunderstanding of the proposed rule. Under the proposal and the rule as adopted, the law enforcement officers will not be enforcing the FAA rules; they will be enforcing their own State and local laws. Airmen now may be subject to such State and local investigations. The rule will not add to or detract from the States' authority; it simply will require crewmembers to cooperate with lawful investigations under the stated circumstances. The final rule has been changed to make this clearer.

Some commenters maintain that the FAA is prohibited from requiring cooperation with State or local law enforcement investigations because the laws and procedures vary from State to State. The courts, however, have upheld several Federal laws which depend in whole or in part on the provisions of applicable State laws, which vary from State to State. For example, the Social Security Act uses the States' definitions of husband and wife to determine eligibility; the Federal Assimilative Crimes Act, dealing with crimes on Federal enclaves, adopts whatever local laws apply if no Federal law exists for the crime. That various State and local laws regarding alcohol testing may be different does not preclude FAA action requiring crewmembers to cooperate with lawful investigations by State and local law officers.

Another commenter suggests that this rule could hamper accident investigations in that law enforcement officers may hold or arrest a pilot for alleged violation of State alcohol laws while the FAA or NTSB is investigating the accident. The proposed rule, however, would make no changes in the State or local laws or policies in this respect, so it would not affect current practice. The FAA does not expect accident investigations to be hampered by this rule.

Some commenters note that, under some circumstances, *Miranda* warnings must be given to people before being questioned by police. Law enforcement officers give *Miranda* warnings to people at certain stages in an investigation to inform them of their right against self-incrimination and their right to be represented by a lawyer. Since the law enforcement officer will be investigating pursuant to State and local laws, not FAA civil regulations, the question of *Miranda* warnings will be a matter of State or local prosecution, not an FAA matter. *Miranda* warnings are not required in connection with FAA civil, administrative proceedings.

One commenter argues that the proposed rule violates the Fourth Amendment to the Constitution. The Fourth Amendment forbids unreasonable searches and seizures. Again, it must be emphasized that the officers will be acting under their State and local laws, not under FAA authority. Many States have laws and Procedures for obtaining alcohol tests which have been held reasonable and valid under the Fourth Amendment. The FAA rule would not affect the validity of these laws.

One commenter objects that the proposed rule would require the NTSB to render decisions of a quasi-criminal nature without adequate due process safeguards and states that the NTSB does not have the authority to render such decisions. The enforcement of FAA rules is a civil matter, not criminal. The existing statutory requirements and procedural rules provide the process that is due for such civil actions.

One commenter contends that the alcohol rule is an implied consent law that must be legislated and cannot be instituted by rulemaking but cites no authority for this argument. The FAA has adequate authority, under the FA Act, to issue this rule to promote safety in air commerce and the public interest. This is especially so in light of studies conclusively proving that the consumption of even small amounts of alcohol impairs a crewmember's ability to perform requisite duties.

One commenter voices concern that the rule would infringe on the privacy of airmen and cause public humiliation. The investigation by the law enforcement officer will be conducted under State or local laws and procedures, not FAA-required procedures. The law enforcement officer will be subject to State and local laws and policies regarding privacy. All FAA enforcement investigations adhere to statutes, departmental rules, and FAA guidelines regarding privacy. The FAA will issue guidelines to its inspectors to assist them in enforcing this rule, and will include guidance to protect privacy.

Several commenters raise questions about which crewmembers should be subject to the rule. Three commenters, representing air carrier pilots, oppose the inclusion of airline pilots under this rule on two grounds: (1) No airline accident has been traced to an alcohol-impaired pilot in over 20 years; (2) the rule might hamper the voluntary programs the air carriers and unions have sponsored to treat and rehabilitate pilots with alcohol and drug problems. The FAA disagrees. Airline and commercial pilots should not be exempt from alcohol rules directed toward all crewmembers. The FAA has revoked pilot certificates of airline transport pilots found to have operated passenger-carrying air carrier aircraft in violation of the alcohol rules. Clearly the FAA is justified in taking further steps to assist in enforcing the alcohol rules against airline and commercial pilots. There is no requirement or justification for awaiting a fatal accident before taking corrective regulatory action. Further, this rule will not interfere with current efforts to rehabilitate pilots with alcohol or drug problems. The rule will simply assist in obtaining evidence of suspected violations of the alcohol rules and, the agency expects, will also assist in deterring such violations.

Three commenters, including two flight attendant unions, object to the inclusion of flight attendants in this rule. They state that flight attendants have never been the cause of aviation accidents. In addition, they point out that, since flight attendants are not certificated, the FAA can only use civil penalties under this rule. As crewmembers who have important safety responsibilities, flight attendants should not be under the influence of drugs or alcohol while on duty. Flight attendants have been included in § 91.11 of the FAR since it was first adopted. Their inclusion in this final rule is consistent with the purpose of the regulation.

Two commenters want the blood alcohol content to be lowered to 0.0 percent. These concerns are being given consideration in another project and are not within the scope of this rulemaking.

One commenter wants the FAA to substitute for the proposed rules a program to educate crewmembers about the danger of flying while impaired. The FAA agrees that education of crewmembers about alcohol and drug abuse is important and has for years conducted seminars and distributed pamphlets on these dangers, but the rules adopted here must also be in force to assist the FAA in identifying those who do violate the alcohol rules.

Sections affected

Sections 61.16 and 63.12a are being revised to make a refusal to submit to an alcohol test that is requested by a law enforcement officer under the terms of new § 91.11(c)(1) grounds for suspension or revocation of a certificate or denial of a certificate or rating.

A paragraph is being added to § 91.11(c) to require crewmembers to submit to alcohol tests if a law enforcement officer requests such a test. The proposed rule inferred that the law enforcement officer would be, at least in part, requesting the test because he or she suspected a violation of the FAA alcohol rules. This is not intended. The proposed rule has been changed to make clear that the law enforcement officer would be making the request to investigate a suspected violation of State or local law. The State or local law would be one governing conduct the same as or substantially similar to conduct prohibited by the FAA's alcohol rules. For instance, if the State law prohibited reckless operation of an aircraft, that prohibition would be deemed to include operating an aircraft while under the influence of alcohol, because such conduct is reckless. A crewmember who was being investigated by a law enforcement officer for suspected flying under the influence of alcohol in violation of the State's reckless flying law would be required, under this rule, to submit to an alcohol test on request of the law officer.

The purpose of this rule is to require submission to a test only when the test may help indicate whether the crewmember has violated FAA rules. A crewmember's failure to submit to a test requested by a law enforcement officer under circumstances not described in this rule will be dealt with only by State or local authorities, not by the FAA.

REGULATORY EVALUATION

These rules will serve as enforcement tools. They will have no economic impact on crewmembers who are not suspected of failing to comply with the alcohol rules. The burden on those who will be requested to submit to an alcohol test will consist of a brief period of time spent undergoing the test. The time spent by the crewmember while being detained by the law enforcement officer during the on-site investigation will not be changed by these amendments.The various States and municipalities that enforce their own "flying while intoxicated" laws would require this detention anyway, so no additional time is being required by these amendments. Since these rules will have no impact on crewmembers, a regulatory evaluation is not warranted.

Conclusion: These amendments will enhance aviation safety by providing an additional enforcement tool and by adding additional deterrence to flying in violation of the FAA's alcohol rules. The agency expects that these changes will reduce aviation accidents and save lives. Compliance with this amendment will have no economic impact on crewmembers. Accordingly, it has been determined that this is not a major regulation under Executive Order 12291. However, because of the public interest in this action, this amendment is significant under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Since this amendment will have no cost impact, I certify that under the criteria of the Regulatory Flexibility Act, these rules would not have a significant economic impact on small entities. A full regulatory evaluation has not been prepared because these amendments will have no cost impact.

Adoption of this Amendment

Accordingly, Parts 61, 63, and 91 of the Federal Aviations Regulations (14 CFR 61, 63, and 91) are amended effective April 9, 1986.

AUTHORITY: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2145; Articles 12, 29, 31, and 32(a) of the Convention of International Civil Aviation (61 Stat. 1180); 42 U.S.C. 4321 *et seq.*; E.0. 11514; and 49 U.S.C. 106(9) (Revised, Pub. L. 97-449; January 12, 1983).

Part 91—General Operating and Flight Rules

Subpart A—General

§ 91.1 Applicability.

(a) Except as provided in paragraph (b) of this section, this Part prescribes rules governing the operation of aircraft (other than moored balloons, kites, unmanned rockets, and unmanned free balloons) within the United States.

(b) Each person operating a civil aircraft of U.S. registry outside of the United States shall—

[(1) When over the high seas, comply with Annex 2 (Rules of the Air) to the Convention on International Civil Aviation and with §§ 91.70(c), 91.88, and 91.90 of Subpart B;]

(2) When within a foreign country, comply with the regulations relating to the flight and maneuver of aircraft there in force;

(3) Except for §§ 91.15(b), 91.17, 91.38, and 91.43, comply with Subparts A, C, and D of this Part so far as they are not inconsistent with applicable regulations of the foreign country where the aircraft is operated or Annex 2 to the Convention on International Civil Aviation; and

(4) When over the North Atlantic within airspace designated as Minimum Navigation Performance Specifications airspace, comply with § 91.20.

(c) Annex 2 to the Convention on International Civil Aviation, Sixth Edition—September 1970, with amendments through Amendment 20 effective August 1976, to which reference is made in this Part is incorporated into this Part and made a part hereof as provided in 5 U.S.C. 552 and pursuant to 1 CFR Part 51. Annex 2 (including a complete historic file of changes thereto) is available for public inspection at the Rules Docket, AGC-24, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591. In addition, Annex 2 may be purchased from the International Civil Aviation Organization (Attention: Distribution Officer), P.O. Box 400, Succursale; Place de L'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2.

§ 91.2 Certificate of authorization for certain Category II operations.

The Administrator may issue a certificate of authorization authorizing devations from the requirements of §§ 91.6, 91.33(f), and 91.34 of this subpart for the operation of small airplanes identified as Category A aircraft in § 97.3 of this chapter in Category II operations, if he finds that the proposed operation can be safely conducted under the terms of the certificate. Such authorization does not permit operation of the aircraft carrying persons or property for compensation or hire.

§ 91.3 Responsibility and authority of the pilot in command.

(a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

(b) In an emergency requiring immediate action, the pilot in command may deviate from any rule of this subpart or of Subpart B to the extent required to meet that emergency.

(c) Each pilot in command who deviates from a rule under paragraph (b) of this section shall, upon the request of the Administrator, send a written report of that deviation to the Administrator.

§ 91.4 Pilot in command of aircraft requiring more than one required pilot.

No person may operate an aircraft that is type certificated for more than one required pilot flight crewmember unless the pilot flight crew consists of a pilot in command who meets the requirements of § 61.58 of this chapter.

§ 91.5 Preflight action.

Each pilot in command shall, before beginning a flight, familiarize himself with all available information concerning that flight. This information must include:

(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which he has been advised by ATC.

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:

(1) For civil aircraft for which an approved airplane or rotorcraft flight manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and

(2) For civil aircraft other than those specified in subparagraph (1) of this paragraph, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

[§ 91.6 Category II and III operations: general operating rules.

[(a) No person may operate a civil aircraft in a Category II or Category III operation unless:

[(1) The flightcrew of the aircraft consists of a pilot in command and a second in command who hold the appropriate authorizations and ratings prescribed in § 61.3 of this chapter:

[(2) Each flight crewmember has adequate knowledge of, and familiarity with, the aircraft and the procedures to be used; and

[(3) The instrument panel in front of the pilot who is controlling the aircraft has appropriate instrumentation for the type of flight control guidance system that is being used.

[(b) Unless otherwise authorized by the Administrator, no person may operate a civil aircraft in a Category II or Category III operation unless each ground component required for that operation and the related airborne equipment is installed and operating.

[(c) For the purpose of this section, when the approach procedure being used provides for and requires use of a DH, the authorized decision height is the DH prescribed by the approach procedure, the DH prescribed for the pilot in command, or the DH for which the aircraft is equipped, whichever is higher.

[(d) Unless otherwise authorized by the Administrator, no pilot operating an aircraft in a Category II or Category III approach that provides and requires use of a DH may continue the approach below the authorized decision height unless the following conditions are met:

[(1) The aircraft is in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing.

[(2) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

[(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

[(ii) The threshold.

[(iii) The threshold markings.

[(iv) The threshold lights.

[(v) The touchdown zone or touchdown zone markings.

[(vi) The touchdown zone lights.

[(e) Unless otherwise authorized by the Administrator, each pilot operating an aircraft shall immediately execute an appropriate missed approach whenever prior to touchdown the requirements of paragraph (d) of this section are not met.

[(f) No person operating an aircraft using a Category III approach without decision height may land that aircraft except in accordance with the provisions of the letter of authorization issued by the Administrator.

(g) Paragraphs (a) through (f) of this section do not apply to operations conducted by the holders of certificates issued under Parts 121, 123, 125, 129, or 135 of this chapter. No person may operate a civil aircraft in a Category II or Category III operation conducted by the holder of a certificate issued under Parts 121, 123, 125, 129, or 135 of this chapter unless the operation is conducted in accordance with that certificate holder's operations specifications.

§ 91.7 Flight crewmembers at stations.

(a) During takeoff and landing, and while en route, each required flight crewmember shall—

(1) Be at his station unless his absence is necessary in the performance of his duties in connection with the operation of the aircraft or in connection with his physiological needs, and

(2) Keep his seat belt fastened while at his station.

(b) After July 18, 1978, each required flight crewmember of a U.S. registered civil airplane shall, during takeoff and landing, keep the shoulder harness fastened while at his station. This paragraph does not apply if—

(1) The seat at the crewmember's station is not equipped with a shoulder harness; or

(2) The crewmember would be unable to perform his required duties with the shoulder harness fastened.

§ 91.8 Prohibition against interference with crewmembers.

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated.

§ 91.9 Careless or reckless operation.

No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another.

§ 91.10 Careless or reckless operation other than for the purpose of air navigation.

No person may operate an aircraft other than for the purpose of air navigation, on any part of the surface of an airport used by aircraft for air commerce (including areas used by those aircraft for receiving or discharging persons or cargo), in a careless or reckless manner so as to endanger the life or property of another.

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§ 91.11 Alcohol or drugs.

(a) No person may act or attempt to act as a crewmember of a civil aircraft—

(1) Within 8 hours after the consumption of any alcoholic beverage;

(2) While under the influence of alcohol;

(3) While using any drug that affects the person's faculties in any way contrary to safety; or

(4) While having .04 percent by weight or more alcohol in the blood.

(b) Except in an emergency, no pilot of a civil aircraft may allow a person who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that aircraft.

[(c) A crewmember shall do the following:

[(1) On request of a law enforcement officer, submit to a test to indicate the percentage by weight of alcohol in the blood, when—

[(i) The law enforcement officer is authorized under State or local law to conduct the test or to have the test conducted; and

[(ii) The law enforcement officer is requesting submission to the test to investigate a suspected violation of State or local law governing the same or substantially similar conduct prohibited by paragraph (a)(1), (a)(2), or (a)(4) of this section.

[(2) Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph (a) (1), (a) (2), or (a) (4) of this section, that person shall, upon request by the Administrator, furnish the Administrator, or authorize any clinic, hospital, doctor, or other person to release to the Administrator, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates percentage by weight of alcohol in the blood.]

(d) Whenever the Administrator has a reasonable basis to believe that a person may have violated paragraph (a) (3) of this section, that person shall, upon request by the Administrator, furnish the Administrator, or authorize any clinic, hospital, doctor, or other person to release to the Administrator, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates the presence of any drugs in the body.

(e) Any test information obtained by the Administrator under paragraph (c) or (d) of this section may be evaluated in determining a person's qualifications for any airman certificate or possible violations of this chapter and may be used as evidence in any legal proceeding under Section 602, 609, or 901 of the Federal Aviation Act of 1958.

§ 91.12 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft within the United States with knowledge that narcotic drugs, marihuana, and depressant or stimulant drugs or substances as defined in Federal or State statutes are carried in the aircraft.

(b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances authorized by or under any Federal or State statute or by any Federal or State agency.

§ 91.13 Dropping objects.

No pilot in command of a civil aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to persons or property.

§ 91.14 Use of safety belts and shoulder harnesses.

(a) Unless otherwise authorized by the Administrator—

(1) No pilot may take off a U.S. registered civil aircraft (except a free balloon that incorporates a basket or gondola and an airship) unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and shoulder harness, if installed.

(2) No pilot may take off or land a U.S. registered civil aircraft (except free balloons that incorporate baskets or gondolas and airships) unless the pilot in command of that aircraft ensures that each person on board has been notified to fasten his safety belt and shoulder harness, if installed.

(3) During the takeoff and landing of U.S. registered civil aircraft (except free balloons that incorporate baskets or gondolas and air-

ships) each person on board that aircraft must occupy a seat or berth with a safety belt and shoulder harnesses, if installed properly secured about him. However, a person who has not reached his second birthday may be held by an adult who is occupying a seat or berth, and a person on board for the purpose of engaging in sport parachuting may use the floor of the aircraft as a seat.

(b) This section does not apply to operations conducted under Parts 121, 123, or 127 of this chapter. Subparagraphs (a) (3) of this section does not apply to persons subject to § 91.7.

§ 91.15 Parachutes and parachuting.

(a) No pilot of a civil aircraft may allow a parachute that is available for emergency use to be carried in that aircraft unless it is an approved type and—

(1) If a chair type (canopy in back), it has been packed by a certificated and appropriately rated parachute rigger within the preceding 120 days; or

(2) If any other type, it has been packed by a certificated and appropriately rated parachute rigger—

(i) Within the preceding 120 days, if its canopy, shouds, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or materials that are substantially resistant to damage from mold, mildew, or other fungi and other rotting agents propagated in a moist environment; or

(ii) Within the preceding 60 days, if any part of the parachute is composed of silk, pongee, or other natural fiber, or materials not specified in subdivision (1) of this paragraph.

(b) Except in an emergency, no pilot in command may allow, and no person may make, a parachute jump from an aircraft within the United States except in accordance with Part 105.

(c) Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft, carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds—

(1) A bank of 60 degrees relative to the horizon; or

(2) A nose-up or nose-down attitude of 30 degrees relative to the horizon.

(d) Paragraph (c) of this section does not apply to—

(1) Flight tests for pilot certification or rating; or

(2) Spins and other flight maneuvers required by the regulations for any certificate or rating when given by—

(i) A certificated flight instructor; or

(ii) An airline transport pilot instructing in accordance with § 61.169 of this chapter.

(e) For the purposes of this section, "approved parachute" means—

(1) A parachute manufactured under a type certificate or a technical standard order (C-23 series); or

(2) A personnel-carrying military parachute identified by an NAF, AAF, or AN drawing number, an AAF order number, or any other military designation or specification number.

§ 91.17 Towing: gliders.

(a) No person may operate a civil aircraft towing a glider unless:

(1) The pilot in command of the towing aircraft is qualified under § 61.69 of this chapter.

(2) The towing aircraft is equipped with a towhitch of a kind, and installed in a manner, approved by the Administrator.

(3) The towline used has a breaking strength not less than 80 percent of the maximum certificated operating weight of the glider, and not more than twice this operating weight. However, the towline used may have a breaking strength more than twice the maximum certificated operating weight of the glider if—

(i) A safety link is installed at the point of attachment of the towline to the glider, with a breaking strength not less than 80 percent of the maximum certificated operating weight of the glider, and not greater than twice this operating weight; and

(ii) A safety link is installed at the point of attachment of the towline to the towing aircraft with a breaking strength greater, but not more than 25 percent greater, than that of the safety link at the towed glider end of the towline, and not greater than twice the maximum certificated operating weight of the glider.

(4) Before conducting any towing operations within a control zone, or before making each towing flight within a control zone if required by ATC, the pilot in command notifies the control tower if one is in operation in that control zone. If such a

control tower is not in operation, he must notify the FAA flight service station serving the control zone before conducting any towing operations in that control zone.

(5) The pilots of the towing aircraft and the glider have agreed upon a general course of action including takeoff and release signals, airspeeds, and emergency procedures for each pilot.

(b) No pilot of a civil aircraft may intentionally release a towline, after release of a glider, in a manner so as to endanger the life or property of another.

(c) [Reserved]

§ 91.18 Towing: other than under § 91.17.

(a) No pilot of a civil aircraft may tow anything with that aircraft (other than under § 91.17) except in accordance with the terms of a certificate of waiver issued by the Administrator.

(b) An application for a certificate of waiver under this section is made on a form and in a manner prescribed by the Administrator and must be submitted to the nearest Flight Standards District Office.

§ 91.19 Portable electronic devices.

(a) Except as provided in paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any of the following U.S. registered civil aircraft:

(1) Aircraft operated by an air carrier or commercial operator; or

(2) Any other aircraft while it is operated under IFR.

(b) Paragraph (a) of this section does not apply to:

(1) Portable voice recorders;

(2) Hearing aids;

(3) Heart pacemakers;

(4) Electric shavers; or

(5) Any other portable electronic device that the operator of the aircraft has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c) In the case of an aircraft operated by an air carrier or commercial operator, the determination required by paragaph (b)(5) of this section shall be made by the air carrier or commercial operator of the aircraft on which the particular device is to be used. In the case of other aircraft, the determination may be made by the pilot in command or other operator of the aircraft.

§ 91.20 Operations within the North Atlantic Minimum Navigation Performance Specifications airspace.

Unless otherwise authorized by the Administrator, no person may operate a civil aircraft of U.S. registry in North Atlantic (NAT) airspace designated as Minimum Navigation Performance Specifications (MNPS) airspace unless that aircraft has approved navigation performance capability which complies with the requirements of Appendix C to this Part. The Administrator authorizes deviations from the requirements of this section in accordance with Section 3 of Appendix C to this Part.

[§ 91.21 Flight instruction; simulated instrument flight and certain flight tests.

[(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning, dual controls. However, instrument flight instruction may be given in a single-engine airplane equipped with a single, functioning throwover control wheel, in place of fixed, dual controls of the elevator and ailerons, when:

[(1) The instructor has determined that the flight can be conducted safely; and

[(2) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.]

(b) No person may operate a civil aircraft in simulated instrument flight unless—

(1) An appropriately rated pilot occupies the other control seat as safety pilot;

(2) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft ade-

quately supplements the vision of the safety pilot; and

(3) Except in the case of lighter-than-air aircraft, that aircraft is equipped with fully functioning dual controls. However, simulated instrument flight may be conducted in a single-engine airplane, equipped with a single, functioning, throwover control wheel, in place of fixed, dual controls of the elevator and ailerons, when—

(i) The safety pilot has determined that the flight can be conducted safely; and

(ii) The person manipulating the control has at least a private pilot certificate with appropriate category and class ratings.

(c) No person may operate a civil aircraft that is being used for a flight test for an airline transport pilot certificate or a class or type rating on that certificate, or for a Federal Aviation Regulation Part 121 proficiency flight test, unless the pilot seated at the controls, other than the pilot being checked, is fully qualified to act as pilot in command of the aircraft.

§ 91.22 Fuel requirements for flight under VFR.

(a) No person may begin a flight in an airplane under VFR unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed—

(1) During the day, to fly after that for at least 30 minutes; or

(2) At night, to fly after that for at least 45 minutes.

(b) No person may begin a flight in a rotorcraft under VFR unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, to fly after that for at least 20 minutes.

§ 91.23 Fuel requirements for flight in IFR conditions.

(a) Except as provided in paragraph (b) of this section, no person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts, and weather conditions) to—

(1) Complete the flight to the first airport of intended landing;

(2) Fly from that airport to the alternate airport; and

(3) Fly after that for 45 minutes at normal cruising speed.

(b) Paragraph (a)(2) of this section does not apply if—

(1) Part 97 of this subchapter prescribes a standard instrument approach procedure for the first airport of intended landing; and

(2) For at least 1 hour before and 1 hour after the estimated time of arrival at the airport, the weather reports or forecasts or any combination of them, indicate—

(i) The ceiling will be at least 2,000 feet above the airport elevation; and

(ii) Visibility will be at least 3 miles.

§ 91.24 [ATC transponder and altitude reporting equipment and use.]

(a) *All airspace: U. S. registered civil aircraft.* For operations not conducted under Parts 121, 123, 127, or 135 of this chapter, ATC transponder equipment installed after January 1, 1974, in U.S. registered civil aircraft not previously equipped with an ATC transponder, and all ATC transponder equipment used in U.S. registered civil aircraft after July 1, 1975, must meet the performance and environmental requirements of any class of TSO-C74b or any class of TSO-C74c as appropriate, except that the Administrator may approve the use of TSO-C74 or TSO-C74a equipment after July 1, 1975, if the applicant submits data showing that such equipment meets the minimum performance standards of the appropriate class of TSO-C74c and environmental conditions of the TSO under which it was manufactured.

(b) *Controlled airspace: all aircraft.* Except for persons operating helicopters in terminal control areas at or below 1,000 feet AGL under the terms of a letter of agreement, and except for persons operating gliders above

12,500 feet MSL but below the floor of the positive control area, no person may operate an aircraft in the controlled airspace prescribed in subparagraphs (b)(1) through (b)(4) of this paragraph, unless that aircraft is equipped with an operable coded radar beacon transponder having a Mode 3/A 4096 code capability, replying to Mode 3/A interrogation with the code specified by ATC, and is equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments. This requirement applies—

(1) In Group I Terminal Control Areas governed by § 91.90(a);

(2) In Group II Terminal Control Areas governed by § 91.90(b), except as provided therein;

(3) In Group III Terminal Control Areas governed by § 91.90(c), except as provided therein; and

(4) In all controlled airspace of the 48 contiguous States and the District of Columbia, above 12,500 feet MSL, excluding the airspace at and below 2,500 feet AGL.

[(c) *Controlled airspace, all aircraft, transponder-on operation.* While in controlled airspace, each person operating an aircraft equipped with an operable ATC transponder maintained in accordance with § 91.172 of this Part shall operate the transponder, including Mode C equipment if installed, and shall reply on the appropriate code or as assigned by ATC.]

[(d)] *ATC authorized deviations.* ATC may authorize deviations from paragraph (b) of this section—

(1) Immediately, to allow an aircraft with an inoperative transponder to continue to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made, or both;

(2) Immediately, for operations of aircraft with an operating transponder but without operating automatic pressure altitude reporting equipment having a Mode C capability; and

(3) On a continuing basis, or for individual flights, for operations of aircraft without a transponder, in which case the request for a deviation must be submitted to the ATC facility having jurisdiction over the airspace concerned at least one hour before the proposed operation.

§ 91.25 VOR equipment check for IFR operations.

(a) No person may operate a civil aircraft under IFR using the VOR system of radio navigation unless the VOR equipment of that aircraft—

(1) Is maintained, checked, and inspected under an approved procedure; or

(2) Has been operationally checked within the preceding 30 days and was found to be within the limits of the permissible indicated bearing error set forth in paragraph (b) or (c) of this section.

(b) Except as provided in paragraph (c) of this section, each person conducting a VOR check under subparagraph (a)(2) of this section, shall—

(1) Use, at the airport of intended departure, an FAA operated or approved test signal or a test signal radiated by a certificated and appropriately rated radio repair station or, outside the United States, a test signal operated or approved by appropriate authority, to check the VOR equipment (the maximum permissible indicated bearing error is plus or minus 4 degrees).

(2) If a test signal is not available at the airport of intended departure, use a point on an airport surface designated as a VOR system checkpoint by the Administrator or, outside the United States, by appropriate authority (the maximum permissible bearing error is plus or minus 4 degrees);

(3) If neither a test signal nor a designated checkpoint on the surface is available, use an airborne checkpoint designated by the Administrator or, outside the United States, by appropriate authority (the maximum permissible bearing error is plus or minus 6 degrees); or

(4) If no check signal or point is available, while in flight—

(i) Select a VOR radial that lies along the centerline of an established VOR airway;

8

(ii) Select a prominent ground point along the selected radial preferably more than 20 miles from the VOR ground facility and maneuver the aircraft directly over the point at a reasonably low altitude; and

(ii) Note the VOR bearing indicated by the receiver when over the ground point (the maximum permissible variation between the published radial and the indicated bearing is 6 degrees).

(c) If dual system VOR (units independent of each other except for the antenna) is installed in the aircraft, the person checking the equipment may check one system against the other in place of the check procedures specified in paragraph (b) of this section. He shall tune both systems to the same VOR ground facility and note the indicated bearings to that station. The maximum permissible variation between the two indicated bearings is 4 degrees.

(d) Each person making the VOR operational check as specified in paragraph (b) or (c) of this section shall enter the date, place, bearing error, and sign the aircraft log or other record. In addition, if a test signal radiated by a repair station, as specified in paragraph (b)(1) of this section, is used, an entry must be made in the aircraft log or other record by the repair station certificate holder or the certificate holder's representative certifying to the bearing transmitted by the repair station for the check and the date of transmission.

§ 91.27 Civil aircraft: certifications required.

(a) Except as provided in § 91.28, no person may operate a civil aircraft unless it has within it the following:

(1) An appropriate and current airworthiness certificate. Each U.S. airworthiness certificate used to comply with this subparagraph (except a special flight permit, a copy of the applicable operations specifications issued under § 21.197(c) of this chapter, appropriate sections of the air carrier manual required by Parts 121 and 127 of this chapter containing that portion of the operations specifications issued under § 21.197(c), or an authorization under § 91.45), must have on it the registration number assigned to the aircraft under Part 47 of this chapter. However, the airworthiness certificate need not have on it an assigned special identification number before 10 days after that number is first affixed to the aircraft. A revised airworthiness certificate having on it an assigned special identification number, that has been affixed to an aircraft, may only be obtained upon application to an FAA Flight Standards District Office.

(2) A registration certificate issued to its owner.

(b) No person may operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section or a special flight authorization issued under § 91.28 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

[§ 91.28 Special flight authorizations for foreign civil aircraft.

[(a) Foreign civil aircraft may be operated without the airworthiness certificates required under § 91.27 if a special flight authorization for that operation is issued under this section. Application for a special flight authorization must be made to the Regional Director of the FAA Region in which the applicant is located, or to the region within which the U.S. point of entry is located. However, in the case of an aircraft to be operated in the U.S. for the purpose of demonstration at an air show, the application may be made to the Regional Director of the FAA region in which the air show is located.

[(b) The Administrator may issue a special flight authorization for a foreign civil aircraft, subject to any conditions and limitations that the Administrator considers necessary for safe operation in the U.S. airspace.

[(c) No person may operate a foreign civil aircraft under a special flight authorization unless that operation also complies with Part 375 of the Special Regulations of the Civil Aeronautics Board (14 CFR 375).]

§ 91.29 Civil aircraft airworthiness.

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. He shall discontinue the flight when unairworthy mechanical or structural conditions occur.

[§ 91.30 Inoperable instruments and equipment for multiengine aircraft.

[(a) No person may take off a multiengine civil aircraft with inoperable instruments or equipment installed unless the following conditions are met:

[(1) An approved Minimum Equipment List exists for that aircraft.

[(2) The aircraft has within it a letter of authorization, issued by the FAA Flight Standards Office having jurisdiction over the area in which the operator is located, authorizing operation of the aircraft under the Minimum Equipment List. The letter of authorization may be obtained by written request of the airworthiness certificate holder. The Minimum Equipment List and the letter of authorization constitute a supplemental type certificate for the aircraft.

[(3) The approved Minimum Equipment List must:

[(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section.

[(ii) Provide for the operation of the aircraft with the instruments and equipment in an inoperable condition.

[(4) The aircraft records available to the pilot must include an entry describing the inoperable instruments and equipment.

[(5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the letter authorizing the use of the list.

[(b) The following instruments and equipment may not be included in a Minimum Equipment List:

[(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the aircraft is type certificated and which are essential for safe operations under all operating conditions.

[(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

[(3) Instruments and equipment required for specific operations by this Part.

[(c) A person authorized to use an approved Minimum Equipment List issued under Part 121 or 135 for a specific aircraft may use that Minimum Equipment List in connection with operations conducted with that aircraft under this Part.

[(d) Notwithstanding any other provision of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit issued in accordance with §§ 21.197 and 21.199 of this chapter.]

§ 91.31 Civil aircraft flight manual marking, and placard requirements.

(a) Except as provided in paragraph (d) of this section, no person may operate a civil aircraft without complying with the operating limitations specified in the approved Airplane or Rotorcraft Flight Manual, markings, and placards, or as otherwise prescribed by the certificating authority of the country of registry.

(b) No person may operate a U.S. registered civil aircraft—

(1) For which an Airplane or Rotorcraft Flight Manual is required by § 21.5 unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual or the manual provided for in § 121.141(b); and

(2) For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof.

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(c) No person may operate a U.S. registered civil aircraft unless that aircraft is identified in accordance with Part 45 of this chapter.

(d) Any person taking off or landing a helicopter certificated Under Part 29 of this chapter at a heliport constructed over water may make such momentary flight as is necessary for takeoff or landing through the prohibited range of the limiting height-speed envelope established for that helicopter if that flight through the prohibited range takes place over water on which a safe ditching can be accomplished, and if the helicopter is amphibious or is equipped with floats or other emergency flotation gear adequate to accomplish a safe emergency ditching on open water.

[(e) [Removed]]

§ 91.32 Supplemental oxygen.

(a) *General.* No person may operate a civil aircraft of U.S. registry—

(1) At cabin pressure altitudes above 12,500 feet (MSL) up to and including 14,000 feet (MSL), unless the required minimum flight crew is provided with and uses supplemental oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration;

(2) At cabin pressure altitudes above 14,000 feet (MSL), unless the required minimum flight crew is provided with and uses supplemental oxygen during the entire flight time at those altitudes; and

(3) At cabin pressure altitudes above 15,000 feet (MSL), unless each occupant of the aircraft is provided with supplemental oxygen.

(b) *Pressurized cabin aircraft.*

(1) No person may operate a civil aircraft of U.S. registry with a pressurized cabin—

(i) At flight altitudes above flight level 250, unless at least a 10-minute supply of supplemental oxygen, in addition to any oxygen required to satisfy paragraph (a) of this section, is available for each occupant of the aircraft for use in the event that a descent is necessitated by loss of cabin pressurization; and

(ii) At flight altitudes above flight level 350, unless one pilot at the controls of the airplane is wearing and using an oxygen mask that is secured and sealed, and that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude of the airplane exceeds 14,000 feet (MSL), except that the one pilot need not wear and use an oxygen mask while at or below flight level 410 if there are two pilots at the controls and each pilot has a quick-donning type of oxygen mask that can be placed on the face with one hand from the ready position within five seconds, supplying oxygen and properly secured and sealed.

(2) Notwithstanding subparagraph (1) (ii) of this paragraph, if for any reason at any time it is necessary for one pilot to leave his station at the controls of the aircraft when operating at flight altitudes above flight level 350, the remaining pilot at the controls shall put on and use his oxygen mask until the other pilot has returned to his station.

§ 91.33 Powered civil aircraft with standard category U.S. airworthiness certificates; instrument and equipment requirements.

(a) *General.* Except as provided in paragraphs (c)(3) and (e) of this section, no person may operate a powered civil aircraft with a standard category U.S. airworthiness certificate in any operation described in paragraphs (b) through (f) of this section unless that aircraft contains the instruments and equipment specified in those paragraphs (or FAA approved equivalents) for that type of operation, and those instruments and items of equipment are in operable condition.

(b) *Visual flight rules (day).* For VFR flight during the day the following instruments and equipment are required:

(1) Airspeed indicator.

(2) Altimeter.

(3) Magnetic direction indicator.

(4) Tachometer for each engine.

(5) Oil pressure gauge for each engine using pressure system.

(6) Temperature gauge for each liquid-cooled engine.

(7) Oil temperature gauge for each air-cooled engine.

(8) Manifold pressure gauge for each altitude engine.

(9) Fuel gauge indicating the quantity of fuel in each tank.

(10) Landing gear position indicator, if the aircraft has a retractable landing gear.

(11) If the aircraft is operated for hire over water and beyond power-off gliding distance from shore, approved flotation gear readily available to each occupant, and at least one pyrotechnic signaling device.

(12) Except as to airships, an approved safety belt for all occupants who have reached their second birthday. After December 4, 1981, each safety belt must be equipped with an approved metal to metal latching device. The rated strength of each safety belt shall not be less than that corresponding with the ultimate load factors specified in the current applicable aircraft airworthiness requirements considering the dimensional characteristics of the safety belt installation for the specific seat or berth arrangement. The webbing of each safety belt shall be replaced as required by the Administrator.

(13) For small civil airplanes manufactured after July 18, 1978, an approved shoulder harness for each front seat. The shoulder harness must be designed to protect the occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in § 23.561(b) (2) of this chapter. Each shoulder harness installed at a flight crewmember station must permit the crewmember, when seated and with his safety belt and shoulder harness fastened, to perform all functions necessary for flight operations. For purposes of this paragraph—

(i) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the FAA Approved Type Design Data; and

(ii) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.

[(14) For normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of nine or less, manufactured after December 12, 1986, a shoulder harness for—

[(i) Each front seat that meets the requirements of § 23.785(g) and (h) of this chapter in effect on December 12, 1985;

[(ii) Each additional seat that meets the requirements of § 23.785(g) of this chapter in effect on December 12, 1985.]

(c) *Visual flight rules (night).* For VFR flight at night the following instruments and equipment are required:

(1) Instruments and equipment specified in paragraph (b) of this section.

(2) Approved position lights.

(3) An approved aviation red or aviation white anticollision light system on all U.S. registered civil aircraft. Anticollision light systems initially installed after August 11, 1971, on aircraft for which a type certificate was issued or applied for before August 11, 1971, must at least meet the anticollision light standards of Parts 23, 25, 27, or 29, as applicable, that were in effect on August 10, 1971, except that the color may be either aviation red or aviation white. In the event of failure of any light of the anticollision light system, operations with the aircraft may be continued to a stop where repairs or replacement can be made.

(4) If the aircraft is operated for hire, one electric landing light.

(5) An adequate source of electrical energy for all installed electrical and radio equipment.

(6) One spare set of fuses, or three spare fuses of each kind required.

(d) *Instrument flight rules.* For IFR flight the following instruments and equipment are required:

(1) Instruments and equipment specified in paragraph (b) of this section and for night flight, instruments and equipment specified in paragraph (c) of this section.

(2) Two-way radio communications system and navigational equipment appropriate to the ground facilities to be used.

[(3) Gyroscopic rate-of-turn indicator, except on the following aircraft:

[(i) Large airplanes with a third attitude instrument system useable through flight attitudes of 360 degrees of pitch and roll and installed in accordance with § 121.305(j) of this chapter; and

[(ii) Rotorcraft, type certificate under Part 29 of this chapter, with a third attitude instrument system useable through flight attitudes of ±80 degrees of pitch and ±120 degrees of roll and installed in accordance with § 29.1303(g) of this chapter.]

(4) Slip-skid indicator.

(5) Sensitive altimeter adjustable for barometric pressure.

(6) A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital presentation.

(7) Generator of adequate capacity.

(8) Gyroscopic bank and pitch indicator (artificial horizon).

(9) Gyroscopic direction indicator (directional gyro or equivalent).

(e) *Flight at and above 24,000 feet MSL.* If VOR navigational equipment is required under paragraph (d)(2) of this section, no person may operate a U.S. registered civil aircraft within the 50 states, and the District of Columbia, at or above 24,000 feet MSL unless that aircraft is equipped with approved distance measuring equipment (DME). When DME required by this paragraph fails at and above 24,000 feet MSL, the pilot in command of the aircraft shall notify ATC immediately, and may then continue operations at and above 24,000 feet MSL to the next airport of intended landing at which repairs or replacement of the equipment can be made.

(f) *Category II operations.* For Category II operations the instruments and equipment specified in paragraph (d) of this section and Appendix A to this Part are required. This paragraph does not apply to operations conducted by the holder of a certificate issued under Part 121 of this chapter.

§ 91.34 Category II manual.

(a) No person may operate a civil aircraft of United States registry in a Category II operation unless—

(1) There is available in the aircraft a current approved Category II manual for that aircraft;

(2) The operation is conducted in accordance with the procedures, instructions, and limitations in that manual; and

(3) The instruments and equipment listed in the manual that are required for a particular Category II operation have been inspected and maintained in accordance with the maintenance program contained in that manual.

(b) Each operator shall keep a current copy of the approved manual at its principal base of operations and shall make it available for inspection upon request of the Administrator.

(c) This section does not apply to operations conducted by the holder of a certificate issued under Part 121 of this chapter.

§ 91.35 Flight recorders and cockpit voice recorders.

No holder of an air carrier or commercial operator certificate may conduct any operation under this Part with an aircraft listed in his operations specifications or current list of aircraft used in air transportation unless that aircraft complies with any applicable flight recorder and cockpit voice recorder requirements of the Part under which its certificate is issued; except that it may—

(a) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(b) Continue a flight as originally planned, if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(c) Conduct an airworthiness flight test, during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft; or

(d) Ferry a newly acquired aircraft from the place where possession of it was taken to a place where the flight recorder or cockpit voice recorder is to be installed.

§ 91.36 Data correspondence between automatically reported pressure altitude data and the pilot's altitude reference.

No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder—

(a) When deactivation of that equipment is directed by ATC;

(b) Unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 125 feet (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 29.92 inches of mercury [for altitudes from sea level to the maximum operating altitude of the aircraft]; or

(c) After September 1, 1979, unless the altimeters and digitizers in that equipment meet the standards in TSO-C10b and TSO-C88, respectively.

§ 91.37 Transport category civil airplane weight limitations.

(a) No person may take off any transport category airplane (other than a turbine engine powered airplane certificated after September 30, 1958) unless—

(1) The takeoff weight does not exceed the authorized maximum takeoff weight for the elevation of the airport of takeoff;

(2) The elevation of the airport of takeoff is within the altitude range for which maximum takeoff weights have been determined;

(3) Normal consumption of fuel and oil in flight to the airport of intended landing will leave a weight on arrival not in excess of the authorized maximum landing weight for the elevation of that airport; and

(4) The elevations of the airport of intended landing and of all specified alternate airports are within the altitude range for which maximum landing weights have been determined.

(b) No person may operate a turbine engine powered transport category airplane certificated after September 30, 1958 contrary to the Airplane Flight Manual, nor takeoff that airplane unless—

(1) The takeoff weight does not exceed the takeoff weight specified in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at the time of takeoff;

(2) Normal consumption of fuel and oil in flight to the airport of intended landing and to the alternate airports will leave a weight on arrival not in excess of the landing weight specified in the Airplane Flight Manual for the elevation of each of the airports involved and for the ambient tempertures expected at the time of landing;

(3) The takeoff weight does not exceed the weight shown in the Airplane Flight Manual to correspond with the minimum distances required for takeoff considering the elevation of the airport, the runway to be used, the effective runway gradient, and the ambient temperature and wind component existing at the time of takeoff; and

(4) Where the takeoff distance includes a clearway, the clearway distance is not greater than one-half of—

(i) The takeoff run, in the case of airplanes certificated after September 30, 1958 and before August 30, 1959; or

(ii) The runway length, in the case of airplanes certificated after August 29, 1959.

(c) No person may take off a turbine engine powered transport category airplane certificated after August 29, 1959 unless, in addition to the requirements of paragraph (b) of this section—

(1) The accelerate-stop distance is no greater than the length of the runway plus the length of the stopway (if present);

(2) The takeoff distance is no greater than the length of the runway plus the length of the clearway (if present); and

(3) The takeoff run is no greater than the length of the runway.

§ 91.38 Increased maximum certificated weights for certain airplanes operated in Alaska.

(a) Notwithstanding any other provision of the Federal Aviation Regulations, the Administrator will, as provided in this section, approve an increase in the maximum certificated weight of an airplane type certificated under Aeronautics Bulletin No. 7-A of the U.S. Department of Commerce dated January 1, 1931, as amended, or under the normal category of Part 4a of the former Civil Air Regulations, (14 CFR 4a, 1964 ed.) if that airplane is operated in the State of Alaska by—

(1) An air taxi operator or other air carrier; or

(2) The U.S. Department of Interior in conducting its game and fish law enforcement activities or its management, fire detection, and fire suppression activities concerning public lands.

(b) The maximum certificated weight approved under this section may not exceed—

(1) 12,500 pounds;

(2) 115 percent of the maximum weight listed in the FAA Aircraft Specifications;

(3) The weight at which the airplane meets the positive maneuvering load factor requirement for the normal category specified in § 23.337 of this chapter; or

(4) The weight at which the airplane meets the climb performance requirements under which it was type certificated.

(c) In determining the maximum certificated weight the Administrator considers the structural soundness of the airplane and the terrain to be traversed.

(d) The maximum certificated weight determined under this section is added to the airplane's operation limitations and is identified as the maximum weight authorized for operations within the State of Alaska.

§ 91.39 Restricted category civil aircraft; operating limitations.

(a) No person may operate a restricted category civil aircraft—

(1) For other than the special purpose for which it is certificated; or

(2) In an operation other than one necessary for the accomplishment of the work activity directly associated with that special purpose.

For the purposes of this paragraph, the operation of a restricted category civil aircraft to provide flight crewmember training in a special purpose operation for which the aircraft is certificated is considered to be an operation for that special purpose.

(b) No person may operate a restricted category civil aircraft carrying persons or property for compensation or hire. For the purposes of this paragraph, a special purpose operation involving the carriage of persons or materials necessary for the accomplishment of that operation such as crop dusting, seeding, spraying, and banner towing (including the carrying of required persons or materials to the location of that operation), and an operation for the purpose of providing flight crewmember training in a special purpose operation, are not considered to be the carrying of persons or property for compensation or hire.

(c) No person may be carried on a restricted category civil aircraft unless—

(1) He is a flight crewmember;

(2) He is a flight crewmember trainee;

(3) He performs an essential function in connection with a special purpose operation for which the aircraft is certificated; or

(4) He is necessary for the accomplishment of the work activity directly associated with that special purpose.

(d) Except when operating in accordance with the terms and conditions of a certificate of waiver or special operating limitations issued by the Administrator, no person may operate a restricted category civil aircraft within the United States—

(1) Over densely populated area;

(2) In a congested airway; or

(3) Near a busy airport where passenger transport operations are conducted.

(e) An application for a certificate of waiver under paragraph (d) of this section is made on a form and in a manner prescribed by the Administrator and must be submitted to the Flight Standards District Office having jurisdiction over the area in which the applicant is located.

(f) After December 9, 1977, this section does not apply to non-passenger-carrying civil rotorcraft external-load operations conducted under Part 133 of this chapter.

(g) No person may operate a small restricted category civil airplane, manufactured after July 18, 1978, unless an approved shoulder harness is installed for each front seat. The shoulder harness must be designed to protect each occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in § 23.561(b)(2) of this chapter. The shoulder harness installation at each flight crewmember station must permit the crewmember, when seated and with his safety belt and shoulder harness fastened, to perform all functions necessary for flight operations. For purposes of this paragraph—

(1) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the FAA Approved Type Design Data; and

(2) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.

§ 91.40 Limited category civil aircraft; operating limitations.

No person may operate a limited category civil aircraft carrying persons or property for compensation or hire.

§ 91.41 Provisionally certificated civil aircraft; operating limitations.

(a) No person may operate a provisionally certificated civil aircraft unless he is eligible for a provisional airworthiness certificate under § 21.213 of this chapter.

(b) No person may operate a provisionally certificated civil aircraft outside the United States unless he has specific authority to do so from the Administrator and each foreign country involved.

(c) Unless otherwise authorized by the [Director of Airworthiness], no person may operate a provisionally certificated civil aircraft in air transportation.

(d) Unless otherwise authorized by the Administrator, no person may operate a provisionally certificated civil aircraft except—

(1) In direct conjunction with the type or supplemental type certification of that aircraft;

(2) For training flight crews, including simulated air carrier operations;

(3) Demonstration flights by the manufacturer for prospective purchasers;

(4) Market surveys by the manufacturer;

(5) Flight checking of instruments, accessories, and equipment, that do not affect the basic airworthiness of the aircraft; or

(6) Service testing of the aircraft.

(e) Each person operating a provisionally certificated civil aircraft shall operate within the prescribed limitations displayed in the aircraft or set forth in the provisional aircraft flight manual or other appropriate document. However, when operating in direct conjunction with the type or supplemental type certification of the aircraft, he shall operate under the experimental aircraft limitations of § 21.191 of this chapter and when flight testing, shall operate under the requirements of § 91.93 of this chapter.

(f) Each person operating a provisionally certificated civil aircraft shall establish approved procedures for—

(1) The use and guidance of flight and ground personnel in operating under this section; and

(2) Operating in and out of airports where takeoffs or approaches over populated areas are necessary.

No person may operate that aircraft except in compliance with the approved procedures.

(g) Each person operating a provisionally certificated civil aircraft shall ensure that each flight crewmember is properly certificated and has adequate knowledge of, and familiarity with, the aircraft and procedures to be used by that crewmember.

(h) Each person operating a provisionally certificated civil aircraft shall maintain it as required by applicable regulations and as may be specially prescribed by the Administrator.

(i) Whenever the manufacturer, or the Administrator, determines that a change in design, construction or operation is necessary to ensure safe operation, no person may operate a provisionally certificated civil aircraft until that change has been made and approved. Section 21.99 of this chapter applies to operations under this section.

(j) Each person operating a provisionally certificated civil aircraft—

(1) May carry in that aircraft only persons who have a proper interest in the operations allowed by this section or who are specifically authorized by both the manufacturer and the Administrator; and

(2) Shall advise each person carried that the aircraft is provisionally certificated.

(k) The Administrator may prescribe additional limitations or procedures that he considers necessary, including limitations on the number of persons who may be carried in the aircraft.

§ 91.42 Aircraft having experimental certificates; operating limitations.

(a) No person may operate an aircraft that has an experimental certificate—

(1) For other than the purpose for which the certificate was issued; or

(2) Carrying persons or property for compensation or hire.

(b) No person may operate an aircraft that has an experimental certificate outside of an area assigned by the Administrator until it is shown that—

(1) The aircraft is controllable throughout its normal range of speeds and throughout all the maneuvers to be executed; and

(2) The aircraft has no hazardous operating characteristics or design features.

(c) Unless otherwise authorized by the Administrator in special operating limitations, no person may operate an aircraft that has an experimental certificate over a densely populated area or in a congested airway. The Administrator may issue special operating limitations for particular aircraft to permit takeoffs and landings to be conducted over a

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densely populated area or in a congested airway, in accordance with terms and conditions specified in the authorization in the interest of safety in air commerce.

(d) Each person operating an aircraft that has an experimental certificate shall—

(1) Advise each person carried of the experimental nature of the aircraft;

(2) Operate under VFR, day only, unless otherwise specifically authorized by the Administrator; and

(3) Notify the control tower of the experimental nature of the aircraft when operating the aircraft into or out of airports with operating control towers.

(e) The Administrator may prescribe additional limitations that he considers necessary, including limitations on the persons that may be carried in the aircraft.

§ 91.43 Special rules for foreign civil aircraft.

(a) *General.* In addition to the other applicable regulations of this Part, each person operating a foreign civil aircraft within the United States shall comply with this section.

[(b) VFR. No person may conduct VFR operations which require two-way radio communications under this Part, unless at least one crewmember of that aircraft is able to conduct two-way radio communications in the English language and is on duty during that operation.]

(c) *IFR.* No person may operate a foreign civil aircraft under IFR unless—

(1) That aircraft is equipped with—

(i) Radio equipment allowing two-way radio communication with ATC when it is operated in a control zone or control area; and

(ii) Radio navigational equipment appropriate to the navigational facilities to be used;

(2) Each person piloting the aircraft—

(i) Holds a current United States instrument rating or is authorized by his foreign airman certificate to pilot under IFR; and

(ii) Is thoroughly familiar with the United States en route, holding, and letdown procedures; and

(3) At least one crewmember of that aircraft is able to conduct two-way radiotelephone communications in the English language and that crewmember is on duty while the aircraft is approaching, operating within, or leaving the United States.

(d) *Overwater.* Each person operating a foreign civil aircraft over water off the shores of the United States shall give flight notification or file a flight plan, in accordance with the Supplementary Procedures for the ICAO region concerned.

(e) *Flight at and above 24,000 feet MSL.* If VOR navigation equipment is required under paragraph (c)(1)(ii) of this section, no person may operate a foreign civil aircraft within the 50 states and the District of Columbia at or above 24,000 feet MSL, unless the aircraft is equipped with distance measuring equipment (DME) capable of receiving and indicating distance information from the VORTAC facilities to be used. When DME required by this paragraph fails at and above 24,000 feet MSL, the pilot in command of the aircraft shall notify ATC immediately, and may then continue operations at and above 24,000 feet MSL to the next airport of intended landing at which repairs or replacement of the equipment can be made.

However, paragraph (e) does not apply to foreign civil aircraft that are not equipped with DME when operated for the following purposes, and if ATC is notified prior to each takeoff:

(1) Ferry flights to and from a place in the United States where repairs or alterations are to be made.

(2) Ferry flights to a new country of registry.

(3) Flight of a new aircraft of U.S. manufacture for the purpose of—

(i) Flight testing the aircraft;

(ii) Training foreign flight crews in the operation of the aircraft; or

(iii) Ferrying the aircraft for export delivery outside the United States.

(4) Ferry, demonstration, and test flights of an aircraft brought to the United States for the purpose of demonstration or testing the whole or any part thereof.

§ 91.45 [Authorization for ferry flights with one engine inoperative.]

[(a) *General.* The holder of an air carrier operating certificate, an operating certificate issued under Part 125, or until January 1, 1983, an operating certificate issued under Part 121, may conduct a ferry flight of a four-engine airplane or a turbine-engine-powered airplane equipped with three engines, with one engine inoperative, to a base for the purpose of repairing that engine subject to the following:]

(1) The airplane model has been test flown and found satisfactory for safe flight in accordance with paragraph (b) or (c) of this section, as appropriate. However, each operator who before November 19, 1966, has shown that a model of airplane with an engine inoperative is satisfactory for safe flight by a test flight conducted in accordance with performance data contained in the applicable Airplane Flight Manual under § 91.45(a) (2) need not repeat the test flight for that model.

(2) The approved Airplane Flight Manual contains the following performance data and the flight is conducted in accordance with that data:

(i) Maximum weight.

(ii) Center of gravity limits.

(iii) Configuration of the inoperative propeller (if applicable).

(iv) Runway length for takeoff (including temperature accountability).

(v) Altitude range.

(vi) Certificate limitations.

(vii) Ranges of operational limits.

(viii) Performance information.

(ix) Operating procedures.

(3) The operator's manual contains operating procedures for the safe operation of the airplane, including specific requirements for—

(i) A limitation that the operating weight on any ferry flight must be the minimum necessary therefor with the necessary reserve fuel load;

(ii) A limitation that takeoffs must be made from dry runways unless, based on a showing of actual operating takeoff techniques on wet runways with one engine inoperative, takeoffs with full controllability from wet runways have been approved for the specific model aircraft and included in the Airplane Flight Manual;

(iii) Operations from airports where the runways may require a takeoff or approach over populated areas; and

(iv) Inspection procedures for determining the operating condition of the operative engines.

(4) No person may take off an airplane under this section if—

(i) The initial climb is over thickly populated areas; or

(ii) Weather conditions at the takeoff or destination airport are less than those required for VFR flight.

[(5) Persons other than required flight crewmembers shall not be carried during the flight.

[(6) No person may use a flight crewmember for flight under this section unless that crewmember is thoroughly familiar with the operating procedures for one-engine inoperative ferry flight contained in the certificate holder's manual, and the limitations and performance information in the Airplane Flight Manual.]

(b) *Flight tests: reciprocating engine powered airplanes.* The airplane performance of a reciprocating engine powered airplane with one engine inoperative must be determined by flight test as follows:

(1) A speed not less than 1.3 V_{S_1} must be chosen at which the airplane may be controlled satisfactorily in a climb with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator) and with all other engines operating at the maximum power determined in subparagraph (3) of this paragraph.

(2) The distance required to accelerate to the speed listed in subparagraph (1) of

this paragraph and to climb to 50 feet must be determined with—

(i) The landing gear extended;

(ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator; and

(iii) The other engines operating at not more than the maximum power established under subparagraph (3) of this paragraph.

(3) The takeoff, flight, and landing procedures such as the approximate trim settings, method of power application, maximum power, and speed must be established.

(4) The performance must be determined at a maximum weight not greater than the weight that allows a rate of climb of at least 400 feet a minute in the en route configuration set forth in § 25.67(d) of this chapter at an altitude of 5,000 feet.

(5) The performance must be determined using temperature accountability for the takeoff field length, computed in accordance with § 25.61 of this chapter.

(c) *Flight tests: turbine engine powered airplanes.* The airplane performance of a turbine engine powered airplane with one engine inoperative must be determined in accordance with the following, by flight tests including at least three takeoff tests:

(1) Takeoff speeds V_R and V_2, not less than the corresponding speeds under which the airplane was type certificated under § 25.107 of this chapter, must be chosen at which the airplane may be controlled satisfactorily with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator, if applicable) and with all other engines operating at not more than the power selected for type certification, as set forth in § 25.101 of this chapter.

(2) The minimum takeoff field length must be the horizontal distance required to accelerate, and climb to the 35-foot height at V_2 speed (including any additional speed increment obtained in the tests), multiplied by 115 percent, and determined with—

(i) The landing gear extended:

(ii) The critical engine inoperative and its propeller removed or in a configuration desired by the operator (if applicable); and

(iii) The other engines operating at not more than the power selected for type certification, as set forth in § 25.101 of this chapter.

(3) The takeoff, flight, and landing procedures such as the approximate trim settings, method of power application, maximum power, and speed, must be established. The airplane must be satisfactorily controllable during the entire takeoff run when operated according to these procedures.

(4) The performance must be determined at a maximum weight not greater than the weight determined under § 25.121(c) of this chapter, but with—

(i) The actual steady gradient of the final takeoff climb requirement not less than 1.2 percent at the end of the takeoff path with two critical engines inoperative; and

(ii) The climb speed not less than the two-engine inoperative trim speed for the actual steady gradient of the final takeoff climb prescribed by subdivision (i) of this subparagrah.

(5) The airplane must be satisfactorily controllable in a climb with two critical engines inoperative. Climb performance may be shown by calculations based on, and equal in accuracy to, the results of testing.

(6) The performance must be determined using temperature accountability for takeoff distance and final takeoff climb, computed in accordance with § 25.101 of this chapter.

For the purposes of subparagraphs (4) and (5), "two critical engines" means two adjacent engines on one side of an airplane with four engines, and the center engine and one outboard engine on an airplane with three engines.

§ 91.47 Emergency exits for airplanes carrying passengers for hire.

(a) Notwithstanding any other provision of this chapter, no person may operate a large airplane (type certificated under the Civil Air Regulations effective before April 9, 1957) in passenger-carrying operations for hire, with more than the number of occupants—

(1) Allowed under Civil Air Regulation § 4b.362(a), (b), and (c), as in effect on December 20, 1951; or

(2) Approved under Special Civil Air Regulations SR-387, SR-389, SR-389A, or SR-389B, or under this section as in effect.

However, an airplane type listed in the following table may be operated with up to the listed number of occupants (including crewmembers) and the corresponding number of exits (including emergency exits and doors) approved for the emergency exit of passengers or with an occupant-exit configuration approved under paragraph (b) or (c) of this section:

Airplane Type	*Maximum number of occupants including all crewmembers*	*Corresponding number of exits authorized for passenger use*
B-307	61	4
B-377	96	9
C-46	67	4
CV-240	53	6
CV-340 and CV-440	53	6
DC-3	35	4
DC-3(Super)	39	5
DC-4	86	5
DC-6	87	7
DC-6B	112	11
L-18	17	3
L-049, L-649, L-749	87	7
L-1049 series	96	9
M-202	53	6
M-404	53	7
Viscount 700 series	53	7

(b) Occupants in addition to those authorized under paragraph (a) of this section may be carried as follows:

(1) For each additional floor-level exit at least 24 inches wide by 48 inches high, with an unobstructed 20-inch wide access aisleway between the exit and the main passenger aisle: Twelve additional occupants.

(2) For each additional window exit located over a wing that meets the requirements of the airworthiness standards under which the airplane was type certificated or that is large enough to inscribe an ellipse 19 x 26 inches: Eight additional occupants.

(3) For each additional window exit that is not located over a wing but that otherwise complies with subparagraph (2) of this paragraph: Five additional occupants.

(4) For each airplane having a ratio (as computed from the table in paragraph (a) of this section) of maximum number of occupants to number of exits greater than 14:1, and for each airplane that does not have at least one full-size door-type exit in the side of the fuselage in the rear part of the cabin, the first additional exit must be a floor-level exit that complies with subparagraph (1) of this paragraph and must be located in the rear part of the cabin on the opposite side of the fuselage from the main entrance door.

However, no person may operate an airplane under this section carrying more than 115 occupants unless there is such an exit on each side of the fuselage in the rear part of the cabin.

(c) No person may eliminate any approved exit except in accordance with the following:

(1) The previously authorized maximum number of occupants must be reduced by the same number of additional occupants authorized for that exit under this section.

(2) Exits must be eliminated in accordance with the following priority schedule: First, non-over-wing window exits; second, over-wing-window exits; third, floor-level exits located in the forward part of the cabin; fourth, floor-level exits located in the rear of the cabin.

(3) At least one exit must be retained on each side of the fuselage regardless of the number of occupants.

(4) No person may remove any exit that would result in a ratio of maximum number of occupants to approved exits greater than 14:1.

(d) This section does not relieve any person operating under Part 121 of this chapter from complying with § 121.291 of this chapter.

§ 91.49 Aural speed warning device.

No person may operate a transport category airplane in air commerce unless that airplane is equipped with an aural speed warning device that complies with § 25.1303(c) (1).

[[§ 91.50 [Reserved.]]]

§ 91.51 Altitude alerting system or device; turbojet powered civil airplanes.

(a) Except as provided in paragraph (d) of this section, no person may operate a turbojet powered U.S. registered civil airplane unless that airplane is equipped with an approved altitude alerting system or device that is in operable condition and meets the requirements of paragraph (b) of this section.

(b) Each altitude alerting system or device required by paragraph (a) of this section must be able to:

(1) Alert the pilot:

(i) Upon approaching a preselected altitude in either ascent or descent, by a sequence of both aural and visual signals in sufficient time to establish level flight at that preselected altitude; or

(ii) Upon approaching a preselected altitude in either ascent or descent, by a sequence of visual signals in sufficient time to establish level flight at that preselected altitude, and when deviating above and below that preselected altitude, by an aural signal;

(2) Provide the required signals from sea level to the highest operating altitude approved for the airplane in which it is installed;

(3) Preselect altitudes in increments that are commensurate with the altitudes at which the aircraft is operated;

(4) Be tested without special equipment to determine proper operation of the alerting signals; and

(5) Accept necessary barometric pressure settings if the system or device operates on barometric pressure.

However, for operations below 3,000 feet AGL, the system or device need only provide one signal, either visual or aural, to comply with this paragraph. A radio altimeter may be included to provide the signal, if the operator has an approved procedure for its use to determine DH or MDA, as appropriate.

(c) Each operator to which this section applies must establish and assign procedures for the use of the altitude alerting system or device and each flight crewmember must comply with those procedures assigned to him.

(d) Paragraph (a) of this section does not apply to any operation of an airplane that has an experimental certificate or to the operation of an airplane for the following purposes:

(1) Ferrying a newly acquired airplane from the place where possession of it was taken to a place where the altitude alerting system or device is to be installed.

(2) Continuing a flight as originally planned, if the altitude alerting system or

device becomes inoperative after the airplane has taken off; however, the flight may not depart from a place where repair or replacement can be made.

(3) Ferrying an airplane with an inoperative altitude alerting system or device from a place where repair or replacement cannot be made to a place where they can be made.

(4) Conducting an airworthiness flight test of the airplane.

(5) Ferrying an airplane to a place outside the United States for the purpose of registering it in a foreign country.

(6) Conducting a sales demonstration of the operation of the airplane.

(7) Training foreign flight crews in the operation of the airplane prior to ferrying it to a place outside the United States for the purpose of registering it in a foreign country.

§ 91.52 Emergency locator transmitters.

(a) Except as provided in paragraphs (e) and (f) of this section, no person may operate a U.S. registered civil airplane unless it meets the applicable requirements of paragraphs (b), (c), and (d) of this section.

(b) To comply with paragraph (a) of this section, each U.S. registered civil airplane must be equipped as follows:

(1) For operations governed by the supplemental air carrier and commercial operator rules of Part 121 of this chapter, or the air travel club rules of Part 123 of this chapter, there must be attached to the airplane an automatic type emergency locator transmitter that is in operable condition and meets the applicable requirements of TSO-C91;

(2) For charter flights governed by the domestic and flag air carrier rules of Part 121 of this chapter, there must be attached to the airplane an automatic type emergency locator transmitter that is in operable condition and meets the applicable requirements of TSO-C91;

(3) For operations governed by Part 135 of this chapter, there must be attached to the airplane an automatic type emergency locator transmitter that is in operable condition and meets the applicable requirements of TSO-C91; and

(4) For operations other than those specified in subparagraphs (1), (2), and (3) of this paragraph, there must be attached to the airplane a personnel type or an automatic type emergency locator transmitter that is in operable condition and meets the applicable requirements of TSO-C91.

(c) Each emergency locator transmitter required by paragraphs (a) and (b) of this section must be attached to the airplane in such a manner that the probability of damage to the transmitter, in the event of crash impact, is minimized. Fixed and deployable automatic type transmitters must be attached to the airplane as far aft as practicable.

(d) Batteries used in the emergency locator transmitters required by paragraphs (a) and (b) of this section must be replaced (or recharged, if the battery is rechargeable)—

(1) When the transmitter has been in use for more than one cumulative hour; or

(2) When 50 percent of their useful life (or, for rechargeable batteries, 50 percent of their useful life of charge), as established by the transmitter manufacturer under TSO-C91, paragraph (g)(2), has expired.

The new expiration date for the replacement (or recharge) of the battery must be legibly marked on the outside of the transmitter and entered in the aircraft maintenance record. Subparagraph (d)(2) of this paragraph does not apply to batteries such as water-activated batteries) that are essentially unaffected during probable storage intervals.

(e) Notwithstanding paragraphs (a) and (b) of this section, a person may—

(1) Ferry a newly acquired airplane from the place where possession of it was taken to a place where the emergency locator transmitter is to be installed; and

(2) Ferry an airplane with an inoperative emergency locator transmitter from a place where repairs or replacement cannot be made to a place where they can be made.

No person other than required crewmembers may be carried board an airplane being ferried pursuant to paragraph (e) of this section.

(f) Paragraphs (a) and (b) of this section do not apply to—

(1) Turbojet-powered aircraft;

(2) Aircraft while engaged in scheduled flights by scheduled air carriers certificated by the Civil Aeronautics Board;

(3) Aircraft while engaged in training operations conducted entirely within a 50-mile radius of the airport from which such local flight operations began;

(4) Aircraft while engaged in flight operations incident to design and testing;

(5) New aircraft while engaged in flight operations incident to their manufacture, preparation, and delivery;

(6) Aircraft while engaged in flight operations incident to the aerial application of chemicals and other substances for agricultural purposes;

(7) Aircraft certificated by the Administrator for research and development purposes;

(8) Aircraft while used for showing compliance with regulations, crew training, exhibition, air racing, or market surveys;

(9) Aircraft equipped to carry not more than one person; and

(10) An aircraft during any period for which the transmitter has been temporarily removed for inspection, repair, modification or replacement, subject to the following:

(i) No person may operate the aircraft unless the aircraft records contain an entry which includes the date of initial removal, the make, model, serial number and reason for removal of the transmitter, and a placard is located in view of the pilot to show "ELT not installed."

(ii) No person may operate the aircraft more than 90 days after the ELT is initially removed from the aircraft.

§ 91.53 [Reserved.]

§ 91.54 Truth in leasing clause requirement in leases and conditional sales contracts.

(a) Except as provided in paragraph (b) of this section, the parties to a lease or contract of conditional sale involving a United States registered large civil aircraft and entered into after January 2, 1973, shall execute a written lease or contract and include therein a written truth in leasing clause as a concluding paragraph in large print, immediately preceding the space for the signature of the parties, which contains the following with respect to each such aircraft:

(1) Identification of the Federal Aviation Regulations under which the aircraft has been maintained and inspected during the 12 months preceding the execution of the lease or contract of conditional sale; and certification by the parties thereto regarding the aircraft's status of compliance with applicable maintenance and inspection requirements in this Part for the operation to be conducted under the lease or contract of conditional sale.

(2) The name and address (printed or typed) and the signature of the person responsible for operational control of the aircraft under the lease or contract of conditional sale, and certification that each person understands that person's responsibilities for compliance with applicable Federal Aviation Regulations.

(3) A statement that an explanation of factors bearing on operational control and pertinent Federal Aviation Regulations can be obtained from the nearest FAA Flight Standards District Office, General Aviation District Office, or Air Carrier District Office.

(b) The requirements of paragraph(a) of this section do not apply—

(1) To a lease or contract of conditional sale when:

(i) The party to whom the aircraft is furnished is a foreign air carrier or certificate holder under Part 121, 123, [125,] 127, 135, or 141 of this chapter; or

(ii) The party furnishing the aircraft is a foreign air carrier, certificate holder under Part 121, 123, [125,] 127, or 141 of this chapter, or a certificate holder under Part 135 of this chapter having appropriate authority to engage in air taxi operations with large aircraft.

(2) To a contract of conditional sale, when the aircraft involved has not been registered anywhere prior to the execution of the contract, except as a new aircraft under a dealer's aircraft registration certificate issued in accordance with § 47.61 of this chapter.

(c) No person may operate a large civil aircraft of U.S. registry that is subject to a lease or contract of conditional sale to which paragraph (a) of this section applies, unless—

(1) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the United States, has mailed a copy of the lease or contract that complies with the requirements of paragraph (a) of this section, within 24 hours of its execution, to the Flight Standards Technical Division, P.O. Box 25724, Oklahoma City, Oklahoma 73125;

(2) A copy of the lease or contract that complies with the requirements of paragraph (a) of this section is carried in the aircraft. The copy of the lease or contract shall be made available for review upon request by the Administrator; and

(3) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the United States, has notified by telephone or in person, the FAA Flight Standards District Office, General Aviation District Office, Air Carrier District Office, or International Field Office nearest the airport where the flight will originate. Unless otherwise authorized by that office, the notification shall be given at least forty-eight hours prior to takeoff in the case of the first flight of that aircraft under that lease or contract and inform the FAA of—

(i) The location of the airport of departure;

(ii) The departure time; and

(iii) The registration number of the aircraft involved.

(d) The copy of the lease or contract furnished to the FAA under paragraph (c) of this section is commercial or financial information obtained from a person. It is, therefore, privileged and confidential, and will not be made available by the FAA for public inspection or copying under 5 U.S.C. 552(b)(4), unless recorded with the FAA under Part 49 of this chapter.

(e) For the purpose of this section, a lease means any agreement by a person to furnish an aircraft to another person for compensation or hire, whether with or without flight crewmembers, other than an agreement for the sale of an aircraft and a contract of conditional sale under section 101 of the Federal Aviation Act of 1958. The person furnishing the aircraft is referred to as the lessor and the person to whom it is furnished the lessee.

§ 91.55 Civil aircraft sonic boom.

(a) No person may operate a civil aircraft in the United States at a true flight Mach number greater than 1 except in compliance with conditions and limitations in an authorization to exceed Mach 1 issued to the operator under Appendix B of this Part.

(b) In addition, no person may operate a civil aircraft, for which the maximum operating limit speed M_{mo} exceeds a Mach number of 1, to or from an airport in the United States unless—

(1) Information available to the flight crew includes flight limitations that ensure that flights entering or leaving the United States will not cause a sonic boom to reach the surface within the United States; and

(2) The operator complies with the flight limitations prescribed in paragraph (b)(1) of this section or complies with conditions and limitations in an authorization to exceed Mach 1 issued under Appendix B of this Part.

[§ 91.56 Agricultural and fire fighting airplanes; noise operating limitations.

[(a) This section applies to propeller-driven, small airplanes having standard airworthiness certificates, that are designed for "agricultural aircraft operations" (as defined in § 137.3 of this chapter, as effective on January 1, 1966) or for dispensing fire fighting materials.

[(b) If the Airplane Flight Manual, or other approved manual material, information, markings, or placards for the airplane indicate that the airplane has not been shown to comply with the noise limits under Part 36 of this chapter, no person may operate that airplane, except—

[(1) To the extent necessary to accomplish the work activity directly associated with the purpose for which it is designed;

[(2) To provide flight crewmember training in the special purpose operation for which the airplane is designed; and

[(3) To conduct "nondispensing aerial work operations" in accordance with the requirements under § 137.29(c) of this chapter.]

§ 91.57 Aviation Safety Reporting Program; prohibition against use of reports for enforcement purposes.

The Administrator the the FAA will not use reports submitted to the National Aeronautics and Space Administration under the Aviation Safety Reporting Program (or information derived therefrom) in any enforcement action, except information concerning criminal offenses or accidents which are wholly excluded from the Program.

§ 91.58 Materials for compartment interiors.

No person may operate an airplane that conforms to an amended or supplemental type certificate issued in accordance with SFAR No. 41 for a maximum certificated takeoff weight in excess of 12,500 pounds, unless within one year after issuance of the initial airworthiness certificate under that SFAR, the airplane meets the compartment interior requirements set forth in § 25.853(a), (b), (b–1), (b–2), and (b–3) of this chapter in effect on September 26, 1978.

§ 91.59 Carriage of candidates in Federal elections.

(a) An aircraft operator, other than one operating an aircraft under the rules of Part 121, 127, or 135 of this chapter, may receive payment for the carriage of a candidate in a Federal election, an agent of the candidate, or a person traveling on behalf of the candidate, if—

(1) That operator's primary business is not as an air carrier or commercial operator;

(2) The carriage is conducted under the rules of Part 91; and

(3) The payment for the carriage is required, and does not exceed the amount required to be paid, by regulations of the Federal Election Commission (11 CFR et seq.).

(b) For the purposes of this section, the terms "candidate" and "election" have the same meaning as that set forth in the regulations of the Federal Election Commission.

Subpart B—Flight Rules

GENERAL

§ 91.61 Applicability.

This subpart prescribes flight rules governing the operation of aircraft within the United States.

§ 91.63 Waivers.

(a) The Administrator may issue a certificate of waiver authorizing the operation of aircraft in deviation of any rule of this subpart if he finds that the proposed operation can be safely conducted under the terms of that certificate of waiver.

(b) An application for a certificate of waiver under this section is made on a form and in a manner prescribed by the Administrator and may be submitted to any FAA office.

(c) A certificate of waiver is effective as specified in that certificate.

§ 91.65 Operating near other aircraft.

(a) No person may operate an aircraft so close to another aircraft as to create a collision hazard.

(b) No person may operate an aircraft in formation flight except by arrangement with the pilot in command of each aircraft in the formation.

(c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

(d) Unless otherwise authorized by ATC, no person operating an aircraft may operate his aircraft in accordance with any clearance or instruction that has been issued to the pilot of another aircraft for radar Air Traffic Control purposes.

§ 91.67 Right-of-way rules; except water operations.

(a) *General.* When weather conditions permit, regardless of whether an operation is conducted under Instrument Flight Rules or Visual

Flight Rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft in compliance with this section. When a rule of this section gives another aircraft the right of way, he shall give way to that aircraft and may not pass over, under, or ahead of it, unless well clear.

(b) *In distress.* An aircraft in distress has the right of way over all other air traffic.

(c) *Converging.* When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so) the aircraft to the other's right has the right of way. If the aircraft are of different categories—

(1) A balloon has the right of way over any other category of aircraft;

(2) A glider has the right of way over an airship, airplane or rotorcraft; and

(3) An airship has the right of way over an airplane or rotorcraft.

However, an aircraft towing or refueling other aircraft has the right of way over all other engine-driven aircraft.

(d) *Approaching head-on.* When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.

(e) *Overtaking.* Each aircraft that is being overtaken has the right of way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(f) *Landing.* Aircraft, while on final approach to land, or while landing, have the right of way over other aircraft in flight or operating on the surface. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right of way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land, or to overtake that aircraft.

(g) *Inapplicability.* This section does not apply to the operation of an aircraft on water.

§ 91.69 Right-of-way rules; water operations.

(a) *General.* Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right of way by any rule of this section.

(b) *Crossing.* When aircraft, or an aircraft and a vessel are on crossing courses, the aircraft or vessel to the other's right has the right of way.

(c) *Approaching head-on.* When aircraft, or an aircraft and a vessel, are approaching head-on or nearly so, each shall alter its course to the right to keep well clear.

(d) *Overtaking.* Each aircraft or vessel that is being overtaken has the right of way, and the one overtaking shall alter course to keep well clear.

(e) *Special circumstances.* When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.

§ 91.70 Aircraft speed.

(a) Unless otherwise authorized by the Administrator, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots (288 m.p.h.).

(b) Unless otherwise authorized or required by ATC, no person may operate an aircraft within an airport traffic area at an indicated airspeed of more than—

(1) In the case of a reciprocating engine aircraft, 156 knots (180 m.p.h.); or

(2) In the case of a turbine-powered aircraft, 200 knots (230 m.p.h.).

Paragraph (b) does not apply to any operations within a Terminal Control Area. Such operations shall comply with paragraph (a) of this section.

(c) No person may operate an aircraft in the airspace underlying a terminal control area, or in a VFR corridor designated through a terminal control area, at an indicated airspeed of more than 200 knots (230 m.p.h.).

However, if the minimum safe airspeed for any particular operation is greater than the maximum speed prescribed in this section, the aircraft may be operated at that minimum speed.

§ 91.71 Acrobatic flight.

No person may operate an aircraft in acrobatic flight—

(a) Over any congested area of a city, town, or settlement;

(b) Over an open air assembly of persons;

(c) Within a control zone or Federal airway;

(d) Below an altitude of 1,500 feet above the surface; or

(e) When flight visibility is less than three miles.

For the purposes of this section, acrobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.

§ 91.73 Aircraft lights.

No person may, during the period from sunset to sunrise (or, in Alaska, during the period a prominent unlighted object cannot be seen from a distance of three statute miles or the sun is more than six degrees below the horizon)—

(a) Operate an aircraft unless it has lighted position lights;

(b) Park or move an aircraft in, or in dangerous proximity to, a night flight operations area of an airport unless the aircraft—

(1) Is clearly illuminated;

(2) Has lighted position lights; or

(3) Is in an area which is marked by obstruction lights[.]

(c) Anchor an aircraft unless the aircraft—

(1) Has lighted anchor lights; or

(2) Is in an area where anchor lights are not required on vessels[; or

[(d) Operate an aircraft, required by § 91.33(c)(3) to be equipped with an anticollision light system, unless it has approved and lighted aviation red or aviation white anticollision lights. However, the anticollision lights need not be lighted when the pilot in command determines that, because of operating conditions, it would be in the interest of safety to turn the lights off.]

§ 91.75 Compliance with ATC clearances and instructions.

(a) When an ATC clearance has been obtained, no pilot in command may deviate from that clearance, except in an emergency, unless he obtains an amended clearance. However, except in positive controlled airspace, this paragraph does not prohibit him from cancelling an IFR flight plan if he is operating in VFR weather conditions. If a pilot is uncertain of the meaning of an ATC clearance, he shall immediately request clarification from ATC.

(b) Except in an emergency, no person may, in an area in which air traffic control is exercised, operate an aircraft contrary to an ATC instruction.

(c) Each pilot in command who deviates, in an emergency, from an ATC clearance or instruction shall notify ATC of that deviation as soon as possible.

(d) Each pilot in command who (though not deviating from a rule of this subpart) is given priority by ATC in an emergency, shall, if requested by ATC, submit a detailed report of that emergency within 48 hours to the chief of that ATC facility.

§ 91.77 ATC light signals.

ATC light signals have the meaning shown in the following table.

Color and type of signal	Meaning with respect to aircraft on the surface	Meaning with respect to aircraft in flight
Steady green	Cleared for takeoff	Cleared to land.
Flashing green	Cleared to taxi	Return for landing (to be followed by steady green at proper time).
Steady red	Stop	Give way to other aircraft and continue circling.
Flashing red	Taxi clear of runway in use.	Airport unsafe—do not land.
Flashing white	Return to starting point on airport.	Not applicable.
Alternating red and green.	Exercise extreme caution.	Exercise extreme caution.

§ 91.79 Minimum safe altitudes; general.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) *Anywhere.* An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) *Over congested areas.* Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) *Over other than congested areas.* An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In that case, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(d) *Helicopters.* Helicopters may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section if the operation is conducted without hazard to persons or property on the surface. In addition, each person operating a helicopter shall comply with routes or altitudes specifically prescribed for helicopters by the Administrator.

§ 91.81 Altimeter settings.

(a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating—

(1) Below 18,000 feet MSL, to—

(i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;

(ii) If there is no station within the area prescribed in subdivision (i) of this subparagraph, the current reported altimeter setting of an appropriate available station; or

(iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure; or

(2) At or above 18,000 feet MSL, to 29.92" Hg.

(b) The lowest usable flight level is determined by the atmospheric pressure in the area of operation, as shown in the following table:

Current altimeter setting	*Lowest usable flight level*
29.92 (or higher)	180
29.91 thru 29.42	185
29.41 thru 28.92	190
28.91 thru 28.42	195
28.41 thru 27.92	200
27.91 thru 27.42	205
27.41 thru 26.92	210

(c) To convert minimum altitude prescribed under §§ 91.79 and 91.119 to the minimum flight level, the pilot shall take the flight-level equivalent of the minimum altitude in feet and add the appropriate number of feet specified below, according to the current reported altimeter setting:

Current altimeter setting	*Adjustment factor*
29.92 (or higher)	None
29.91 thru 29.42	500 feet
29.41 thru 28.92	1000 feet
28.91 thru 28.42	1500 feet
28.41 thru 27.92	2000 feet
27.91 thru 27.42	2500 feet
27.41 thru 26.92	3000 feet

§ 91.83 Flight plan; information required.

(a) Unless otherwise authorized by ATC, each person filing an IFR or VFR flight plan shall include in it the following information:

(1) The aircraft identification number and, if necessary, its radio call sign.

(2) The type of the aircraft or, in the case of a formation flight, the type of each aircraft and the number of aircraft, in the formation.

(3) The full name and address of the pilot in command or, in the case of a formation flight, the formation commander.

(4) The point and proposed time of departure.

(5) The proposed route, cruising altitude (or flight level), and true airspeed at that altitude.

(6) The point of first intended landing and the estimated elapsed time until over that point.

(7) The radio frequencies to be used.

(8) The amount of fuel on board (in hours).

(9) In the case of an IFR flight plan, an alternate airport, except as provided in paragraph (b) of this section.

[(10) The number of persons in the aircraft, except where that information is otherwise readily available to the FAA.]

(11) Any other information the pilot in command or ATC believes is necessary for ATC purposes.

[(b) *Exceptions to applicability of paragraph (a)(9) of this section.* Paragraph (a)(9) of this section does not apply if Part 97 of this subchapter prescribes a standard instrument approach procedure for the first airport of intended landing and, for at least one hour before and one hour after the estimated time of arrival, the weather reports or forecasts or any combination of them, indicate—

[(1) The ceiling will be at least 2,000 feet above the airport elevation; and

[(2) Visibility will be at least 3 miles.]

(c) *IFR alternate airport weather minimums.* Unless otherwise authorized by the Administrator, no person may include an alternate airport in an IFR flight plan unless current weather forecasts indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be at or above the following alternate airport weather minimums:

(1) If an instrument approach procedure has been published in Part 97 for that airport, the alternate airport minimums specified in that procedure or, if none are so specified, the following minimums:

(i) Precision approach procedure: ceiling 600 feet and visibility 2 statute miles.

(ii) Non-precision approach procedure: ceiling 800 feet and visibility 2 statute miles.

(2) If no instrument approach procedure has been published in Part 97 for that airport, the ceiling and visibility minimums are those allowing descent from the MEA, approach, and landing, under basic VFR.

(d) *Cancellation.* When a flight plan has been activated, the pilot in command, upon cancelling or completing the flight under the flight plan, shall notify an FAA Flight Service Station or ATC facility.

§ 91.84 Flights between Mexico or Canada and the United States.

Unless otherwise authorized by ATC, no person may operate a civil aircraft between Mexico or Canada and the United States without filing an IFR or VFR flight plan, as appropriate.

§ 91.85 Operating on or in the vicinity of an airport; general rules.

(a) Unless otherwise required by Part 93 of this chapter, each person operating an aircraft on or in the vicinity of an airport shall comply with the requirements of this section and of §§ 91.87 and 91.89.

(b) Unless otherwise authorized or required by ATC, no person may operate an aircraft within an airport traffic area except for the purpose of landing at, or taking off from, an airport within that area. ATC authorizations may be given as individual approval of specific operations or may be contained in written agreements between airport users and the tower concerned.

(c) After March 28, 1977, except when necessary for training or certification, the pilot in command of a civil turbojet-powered airplane shall use, as a final landing flap setting, the minimum certificated landing flap setting set forth in the approved performance information in the Airplane Flight Manual for the applicable conditions. However, each pilot in command has the final authority and responsibility for the safe operation of his airplane, and he may use a different flap setting approved for that airplane if he determines that it is necessary in the interest of safety.

§ 91.87 Operation at airports with operating control towers.

(a) *General.* Unless otherwise authorized or required by ATC, each person operating an aircraft to, from, or on an airport with an operating control tower shall comply with the applicable provisions of this section.

(b) *Communications with control towers operated by the United States.* No person may, within an airport traffic area, operate an aircraft to, from, or on an airport having a control tower operated by the United States unless two-way radio communications are maintained between that aircraft and the control tower. However, if the aircraft radio

fails in flight, he may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, he maintains visual contact with the tower, and he receives a clearance to land. If the aircraft radio fails while in flight under IFR, he must comply with § 91.127.

(c) *Communications with other control towers.* No person may, within an airport traffic area, operate an aircraft to, from, or on an airport having a control tower that is operated by any person other than the United States unless—

(1) If that aircraft's radio equipment so allows, two-way radio communications are maintained between the aircraft and the tower; or

(2) If that aircraft's radio equipment allows only reception from the tower, the pilot has the tower's frequency monitored.

(d) *Minimum altitudes.* When operating to an airport with an operating control tower, each pilot of—

(1) A turbine-powered airplane or a large airplane shall, unless otherwise required by the applicable distance from cloud criteria, enter the airport traffic area at an altitude of at least 1,500 feet above the surface of the airport and maintain at least 1,500 feet within the airport traffic area, including the traffic pattern, until further descent is required for a safe landing;

(2) A turbine-powered airplane or a large airplane approaching to land on a runway being served by an ILS, shall, if the airplane is ILS equipped, fly that airplane at an altitude at or above the glide slope between the outer marker (or the point of interception with the glide slope, if compliance with the applicable distance from clouds criteria requires interception closer in) and the middle marker; and,

(3) An airplane approaching to land on a runway served by a visual approach slope indicator, shall maintain an altitude at or above the glide slope until a lower altitude is necessary for a safe landing.

However, subparagraphs (2) and (3) of this paragraph do not prohibit normal bracketing maneuvers above or below the glide slope that are conducted for the purpose of remaining on the glide slope.

(e) *Approaches.* When approaching to land at an airport with an operating control tower, each pilot of—

(1) An airplane, shall circle the airport to the left; and

(2) A helicopter, shall avoid the flow of fixed-wing aircraft.

(f) *Departures.* No person may operate an aircraft taking off from an airport with an operating control tower except in compliance with the following:

(1) Each pilot shall comply with any departure procedures established for that airport by the FAA.

(2) Unless otherwise required by the departure procedure or the applicable distance from clouds criteria, each pilot of a turbine-powered airplane and each pilot of a large airplane shall climb to an altitude of 1,500 feet above the surface as rapidly as practicable.

(g) *Noise abatement runway system.* When landing or taking off from an airport with an operating control tower, and for which a formal runway use program has been established by the FAA, each pilot of a turbine-powered airplane and each pilot of a large airplane, assigned a noise abatement runway by ATC, shall use that runway. [However, consistent with the final authority of the pilot in command concerning the safe operation of the aircraft as prescribed in § 91.3(a), ATC may assign a different runway if requested by the pilot in the interest of safety.]

(h) Clearances required. No person may, at an airport with an operating control tower, operate an aircraft on a runway or taxiway, or takeoff or land an aircraft, unless an appropriate clearance is received from ATC. A clearance to "taxi to" the takeoff runway assigned to the aircraft is not a clearance to cross that assigned takeoff runway, or to taxi on that runway at any point, but is a clearance to cross other runways that intersect the taxi route to that assigned takeoff runway. A clearance to "taxi to" any point other than an assigned takeoff runway is a clearance to cross all runways that intersect the taxi route to that point.

[91.88 Airport radar service areas.

[(a) *General.* For the purposes of this section, the primary airport is the airport designated in Part 71, Subpart L, for which the airport radar service area is designated. A satellite airport is any other airport within the airport radar service area.

[(b) *Deviations.* An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction of the airport radar service area. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

[(c) *Arrivals and Overflights.* No person may operate an aircraft in an airport radar service area unless two-way radio communication is established with ATC prior to entering that area and is thereafter maintained with ATC while within that area.

[(d) *Departures.* No person may operate an aircraft within an airport radar service area unless two-way radio communication is maintained with ATC while within that area, except that for aircraft departing a satellite airport, two-way radio communication is established as soon as practicable and thereafter maintained with ATC while within that area.

[(e) *Traffic Patterns.* No person may takeoff or land an aircraft at a satellite airport within an airport radar service area except in compliance with FAA arrival and departure traffic patterns.]

§ 91.89 Operation at airports without control towers.

(a) Each person operating an aircraft to or from an airport without an operating control tower shall—

(1) In the case of an airplane approaching to land, make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot shall make all turns to the right;

(2) In the case of a helicopter approaching to land, avoid the flow of fixed-wing aircraft; and

(3) In the case of an aircraft departing the airport, comply with any FAA traffic pattern for that airport.

§ 91.90 Terminal control areas.

(a) *Group I terminal control areas.*

(1) *Operating rules.* No person may operate an aircraft within a Group I terminal control area designated in Part 71 of this chapter except in compliance with the following rules:

(i) No person may operate an aircraft within a Group I terminal control area unless he has received an appropriate authorization from ATC prior to the operation of that aircraft in that area.

(ii) Unless otherwise authorized by ATC, each person operating a large turbine engine powered airplane to or from a primary airport shall operate at or above the designated floors while within the lateral limits of the terminal control area.

(2) *Pilot requirements.* The pilot in command of a civil aircraft may not land or take off that aircraft from an airport within a Group I terminal control area unless he holds at least a private pilot certificate.

(3) *Equipment requirements.* Unless otherwise authorized by ATC in the case of in-flight VOR, TACAN, or two-way radio failure: or unless otherwise authorized by ATC in the case of a transponder failure occurring at any time, no person may operate an aircraft within a Group I terminal control area unless that aircraft is equipped with—

(i) An operable VOR or TACAN receiver (except in the case of helicopters);

(ii) An operable two-way radio capable of communicating with ATC on appropriate frequencies for that terminal control area; and

(iii) The applicable equipment specified in § 91.24.

(b) *Group II terminal control areas.*

(1) *Operating rules.* No person may operate an aircraft within a Group II terminal control area designated in Part 71 of this chapter except in compliance with the following rules:

(i) No person may operate an aircraft within a Group II Terminal Control Area unless he has received an appropriate authorization from ATC prior to operation of that aircraft in that area, and unless two-way radio communications are maintained, within that area, between that aircraft and the ATC facility.

(ii) Unless otherwise authorized by ATC, each person operating a large turbine engine powered airplane to or from a primary airport shall operate at or above the designated floors while within the lateral limits of the terminal control area.

(2) *Equipment requirements.* Unless otherwise authorized by ATC in the case of in-flight VOR, TACAN, or two-way radio failure; or unless otherwise authorized by ATC in the case of a transponder failure occurring at any time, no person may operate an aircraft within a Group II terinal control area unless that aircraft is equipped with—

(i) An operable VOR or TACAN receiver (except in the case of helicopters);

(ii) An operable two-way radio capable of communicating with ATC on the appropriate frequencies for that terminal control area; and

(iii) The applicable equipment specified in § 91.24, except that automatic pressure altitude reporting equipment is not required for any operation within the terminal control area, and a transponder is not required for IFR flights operating to or from an airport outside of but in close proximity to the terminal control area, when the commonly used transition, approach, or departure procedures to such airport require flight within the terminal control area.

(c) *Group III terminal control areas.* No person may operate an aircraft within a Group II Terminal Control Area designated in Part 71 unless the applicable provisions of § 91.24(b) are complied with, except that such compliance is not required if two-way radio communications are maintained, within the TCA, between the aircraft and the ATC facility, and the pilot provides position, altitude, and proposed flight path prior to entry.

[§ 91.91 Temporary flight restrictions.

[(a) The Administrator will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply and specifying the hazard or condition requiring their imposition, whenever he determines it is necessary in order to—

[(1) Protect persons and property on the surface or in the air from a hazard associated with an incident on the surface;

[(2) Provide a safe environment for the operation of disaster relief aircraft; or

[(3) Prevent an unsafe congestion of sightseeing and other aircraft above an incident or event which may generate a high degree of public interest.

[The Notice to Airmen will specify the hazard or condition that requires the imposition of temporary flight restrictions.

[(b) When a NOTAM has been issued under paragraph (a) (1) of this section, no person may operate an aircraft within the designated area unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

[(c) When a NOTAM has been issued under paragraph (a) (2) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions are met:

[(1) The aircraft is participating in hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

[(2) The aircraft is carrying law enforcement officials.

[(3) The aircraft is operating under an ATC approved IFR flight plan.

[(4) The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather, or terrain; notification is given to the Flight Service Station (FSS) or ATC facility specified in the NOTAM to receive advisories concerning disaster relief aircraft operations; and the operation does not hamper or endanger relief activities and is not conducted for the purpose of observing the disaster.

[(5) The aircraft is carrying properly accredited news representatives, and, prior to entering the area, a flight plan is filed with the appropriate FAA or ATC facility specified in the Notice to Airmen and the operation is conducted above the altitude used by the disaster relief aircraft, unless otherwise authorized by the official in charge of on scene emergency response activities.

[(d) When a NOTAM has been issued under paragraph (a) (3) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions is met:

[(1) The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather or terrain, and the operation is not conducted for the purpose of observing the incident or event.

[(2) The aircraft is operating under an ATC approved IFR flight plan.

[(3) The aircraft is carrying incident or event personnel, or law enforcement officials.

[(4) The aircraft is carrying properly accredited news representatives and, prior to entering that area, a flight plan is filed with the appropriate FSS or ATC facility specified in the NOTAM.

[(e) Flight plans filed and notifications made with an FSS or ATC facility under this section shall include the following information:

[(1) Aircraft identification, type and color.

[(2) Radio communications frequencies to be used.

[(3) Proposed times of entry of, and exit from, the designated area.

[(4) Name of news media or organization and purpose of flight.

[(5) Any other information requested by ATC.]

§ 91.93 Flight test areas.

No person may flight test an aircraft except over open water, or sparsely populated areas, having light air traffic.

§ 91.95 Restricted and prohibited areas.

(a) No person may operate an aircraft within a restricted area (designated in Part 73) contrary to the restrictions imposed, or within a prohibited area, unless he has the permission of the using or controlling agency, as appropriate.

(b) Each person conducting, within a restricted area, an aircraft operation (approved by the using agency) that creates the same hazards as the operations for which the restricted area was designated, may deviate from the rules of this subpart that are not compatible with his operation of the aircraft.

§ 91.97 Positive control areas and route segments.

(a) Except as provided in paragraph (b) of this section, no person may operate an aircraft within a positive control area or positive control route segment, designated in Part 71 of this chapter, unless that aircraft is—

(1) Operated under IFR at a specific flight level assigned by ATC;

(2) Equipped with instruments and equipment required for IFR operations;

(3) Flown by a pilot rated for instrument flight; and

(4) Equipped, when in a positive control area, with—

(i) The applicable equipment specified in § 91.24; and

(ii) A radio providing direct pilot controller communication on the frequency specified by ATC for the area concerned.

(b) ATC may authorize deviations from the requirements of paragraph (a) of this section. In the case of an inoperative transponder, ATC may immediately approve an operation within a positive control area allowing flight to continue, if desired, to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made, or both. A request for authorization to deviate from a requirement of paragraph (a) of this section, other than for operation with an inoperative transponder as outlined above, must be submitted at least four days before the proposed operation, in writing, to the ATC center having jurisdiction over the positive control area concerned. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

§ 91.99 [Reserved]

§ 91.100 Emergency air traffic rules.

(a) This section prescribes a process for utilizing Notices to Airmen (NOTAM) to advise of the issuance and operations under emergency air traffic rules and regulations and designates the official who is authorized to issue NOTAMs on behalf of the Administrator in certain matters under this section.

(b) Whenever the Administrator determines that an emergency condition exists, or will exist, relating to the FAA's ability to operate the Air Traffic Control System and during which normal flight operations under this chapter cannot be conducted consistent with the required levels of safety and efficiency—

(1) The Administrator issues an immediately effective Air Traffic rule or regulation in response to that emergency condition, and

(2) The Administrator, or the Director, Air Traffic Service, may utilize the Notice to Airmen (NOTAMs) system to provide notification of the issuance of the rule or regulation. Those NOTAMs communicate information concerning the rules and regulations that govern flight operations, the use of navigation facilities, and designation of that airspace in which the rules and regulations apply.

(c) When a NOTAM has been issued under this section, no person may operate an aircraft, or other device governed by the regulation concerned, within the designated airspace, except in accordance with the authorizations, terms, and conditions prescribed in the regulation covered by the NOTAM.

§ 91.101 Operations to Cuba.

No person may operate a civil aircraft from the United States to Cuba unless—

(a) Departure is from an international airport of entry designated in § 6.13 of the Air Commerce Regulations of the Bureau of Customs (19 CFR 6.13); and

(b) In the case of departure from any of the 48 contiguous States or the District of Columbia, the pilot in command of the aircraft has filed—

(1) A DVFR or IFR flight plan as prescribed in § 99.11 or 99.13 of this chapter; and

(2) A written statement, within one hour before departure, with the office of Immigration and Naturalization Service at the airport of departure, containing—

(i) All information in the flight plan;

(ii) The name of each occupant of the aircraft;

(iii) The number of occupants of the aircraft; and

(iv) A description of the cargo, if any.

This section does not apply to the operation of aircraft by a scheduled air carrier over routes authorized in operations specifications issued by the Administrator.

§ 91.102 Flight limitation in the proximity of space flight operations.

No person may operate any aircraft of United States registry, or pilot any aircraft under the authority of an airman certificate issued by the Federal Aviation Administration within areas designated in a Notice to Airmen (NOTAM) for space flight operations except when authorized by ATC, or operated under the control of the Department of Defense Manager for Manned Space Flight Support Operations.

§ 91.103 Operation of civil aircraft of Cuban registry.

No person may operate a civil aircraft of Cuban registry except in controlled airspace and in accordance with air traffic clearances or air traffic control instructions that may require use of specific airways or routes and landings at specific airports.

§ 91.104 Flight restrictions in the proximity of the Presidential and other parties.

No person may operate an aircraft over or in the vicinity of any area to be visited or traveled by the President, the Vice President, or other public figures contrary to the restrictions established by the Administrator and published in a Notice to Airmen (NOTAM).

VISUAL FLIGHT RULES

§ 91.105 Basic VFR weather minimums.

(a) Except as provided in § 91.107, no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude in the following table:

Altitude	Flight visibility	Distance from clouds
1,200 feet or less above the surface (regardless of MSL altitude)- Within controlled airspace	3 statute miles	500 feet below. 1,000 feet above. 2,000 feet horizontal.
Outside controlled airspace	1 statute mile except as provided in § 91.105(b).	Clear of clouds.
More than 1,200 feet above the surface but less than 10,000 feet MSL— Within controlled airspace	3 statute miles	500 feet below. 1,000 feet above. 2,000 feet horizontal.
Outside controlled airspace	1 statue mile	500 feet below. 1,000 feet above. 2,000 feet horizontal.
More than 1,200 feet above the surface and at or above 10,000 feet MSL.	5 statute miles	1,000 feet below. 1,000 feet above. 1 mile horizontal.

(b) When the visibility is less than one mile, a helicopter may be operated outside controlled airspace at 1,200 feet or less above the surface if operated at a speed that allows the pilot adequate opportunity to see any air traffic or other obstruction in time to avoid a collision.

(c) Except as provided in § 91.107, no person may operate an aircraft, under VFR, within a control zone beneath the ceiling when the ceiling is less than 1,000 feet.

(d) Except as provided in § 91.107, no person may take off or land an aircraft, or enter the traffic pattern of an airport, under VFR, within a control zone—

(1) Unless ground visibility at that airport is at least three statute miles; or

(2) If ground visibility is not reported at that airport, unless flight visibility during landing or take off, or while operating in the traffic pattern, is at least three statute miles.

(e) For the purposes of this section, an aircraft operating at the base altitude of a transition area or control area is considered to be within the airspace directly below that area.

§ 91.107 Special VFR weather minimums.

(a) Except as provided in § 93.113, when a person has received an appropriate ATC clearance, the special weather minimums of this section instead of those contained in § 91.105 apply to the operation of an aircraft by that person in a control zone under VFR.

(b) No person may operate an aircraft in a control zone under VFR except clear of clouds.

(c) No person may operate an aircraft (other than a helicopter) in a control zone under VFR unless flight visibility is at least one statute mile.

(d) No person may take off or land an aircraft (other than a helicopter) at any airport in a control zone under VFR—

(1) Unless ground visibility at that airport is at least one statute mile; or

(2) If ground visibility is not reported at that airport, unless flight visibility during landing or takeoff is at least one statute mile.

(e) No person may operate an aircraft (other than a helicopter) in a control zone under the special weather minimums of this section, between sunset and sunrise (or in Alaska, when the sun is more than six degrees below the horizon) unless:

(1) That person meets the applicable requirements for instrument flight under Part 61 of this chapter; and

(2) The aircraft is equipped as required in § 91.33(d).

§ 91.109 VFR cruising altitude or flight level.

Except while holding in a holding pattern of 2 minutes or less, or while turning, each person operating an aircraft under VFR in level cruising flight more than 3,000 feet above the surface shall maintain the appropriate altitude or flight level prescribed below, unless otherwise authorized by ATC:

(a) When operating below 18,000 feet MSL and—

(1) On a magnetic course of zero degrees through 179 degrees, any odd thousand foot MSL altitude +500 feet (such as 3,500, 5,500, or 7,500); or

(2) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude +500 feet (such as 4,500, 6,500, or 8,500).

(b) When operating above 18,000 feet MSL to flight level 290 (inclusive), and—

(1) On a magnetic course of zero degrees through 179 degrees, any odd flight level +500 feet (such as 195, 215, or 235); or

(2) On a magnetic course of 180 degrees through 359 degrees, any even flight level +500 feet (such as 185, 205, or 225).

(c) When operating above flight level 290 and—

(1) On a magnetic course of zero degrees through 179 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 300 (such as flight level 300, 340, or 380); or

(2) On a magnetic course of 180 degrees through 359 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 320 (such as flight level 320, 360, or 400).

INSTRUMENT FLIGHT RULES

§ 91.115 ATC clearance and flight plan required.

No person may operate an aircraft in controlled airspace under IFR unless—

(a) He has filed an IFR flight plan; and

(b) He has received an appropriate ATC clearance.

§ 91.116 Takeoff and landing under IFR.

(a) *Instrument approaches to civil airports.* Unless otherwise authorized by the Administrator for paragraphs (a) through (k) of this section, when an instrument letdown to a civil airport is necessary, each person operating an aircraft, except a military aircraft of the United States, shall use a standard instrument approach procedure prescribed for the airport in Part 97 of this chapter.

(b) *Authorized DH or MDA.* For the purpose of this section, when the approach procedure being used provides for and requires use of a DH or MDA, the authorized decision height or authorized minimum descent altitude is the DH or MDA prescribed by the approach procedure, the DH or MDA prescribed for the pilot in command, or the DH or MDA for which the aircraft is equipped, whichever is higher.

(c) *Operation below DH or MDA.* Where a DH or MDA is applicable, no pilot may operate an aircraft, except a military aircraft of the United States, at any airport below the authorized MDA or continue an approach below the authorized DH unless—

(1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and for operations conducted under Part 121 or Part 135 unless that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;

[(2) The flight visibility is not less than the visibility prescribed in the standard instrument approach being used;

[(3) Except for a Category II or Category III approach where any necessary visual reference requirements are specified by the Administrator, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

[(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

[(ii) The threshold.

[(iii) The threshold markings.

[(iv) The threshold lights.

[(v) The runway end identifier lights.

[(vi) The visual approach slope indicator.

[(vii) The touchdown zone or touchdown zone markings.

[(viii) The touchdown zone lights.

[(ix) The runway or runway markings.

[(x) The runway lights; and

[(4) When the aircraft is on a straight-in nonprecision approach procedure which incorporates a visual descent point, the aircraft has reached the visual descent point, except where the aircraft is not equipped for or capable of establishing that point or a descent to the runway cannot be made using normal procedures or rates of descent if descent is delayed until reaching the point.

[(d) *Landing.* No pilot operating an aircraft, except a military aircraft of the United States, may land that aircraft when the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used.

[(e) *Missed approach procedures.* Each pilot operating an aircraft, except a military aircraft of the United States, shall immediately execute an appropriate missed approach procedure when either of the following conditions exist:

[(1) Whenever the requirements of paragraph (c) of this section are not met at either of the following times:

[(i) When the aircraft is being operated below MDA; or

[(ii) Upon arrival at the missed approach point, including a DH where a DH is specified and its use is required, and at any time after that until touchdown.

[(2) Whenever an identifiable part of the airport is not distinctly visible to the pilot during a circling maneuver at or above MDA, unless the inability to see an identifiable part of the airport results only from a normal bank of the aircraft during the circling approach.

[(f) *Civil airport takeoff minimums.* Unless otherwise authorized by the Administrator, no pilot operating an aircraft under Part 121, 123, 125, 129, or 135 of this chapter may take off from a civil airport under IFR unless weather conditions are at or above the weather minimums for IFR takeoff prescribed for that airport under Part 97 of this chapter. If takeoff minimums are not prescribed under Part 97 of this chapter for a particular airport, the following minimums apply to takeoffs under IFR for aircraft operating under those Parts:

[(1) For aircraft having two engines or less—1 statute mile visibility.

[(2) For aircraft having more than two engines—½ statute mile visibility.

[(g) *Military airports.* Unless otherwise prescribed by the Administrator, each person operating a civil aircraft under IFR into or out of a military airport shall comply with the instrument approach procedures and the takeoff and landing minimums prescribed by the military authority having jurisdiction of that airport.

[(h) *Comparable values of RVR and ground visibility.*

[(1) Except for Category II or Category III minimums, if RVR minimums for takeoff or landing are prescribed in an instrument approach procedure, but RVR is not reported for the runway of intended operation, the RVR minimum shall be converted to ground visibility in accordance with the table in paragraph (h)(2) of this section and shall be the visibility minimum for takeoff or landing on that runway.

[(2) RVR (feet)	Visibility (statute miles)
1,600	¼
2,400	½
3,200	⅝
4,000	¾
4,500	⅞
5,000	1
6,000	1¼

[(i) *Operations on unpublished routes and use of radar in instrument approach procedures.* When radar is approved at certain locations for ATC purposes, it may be used not only for surveillance and precision radar approaches, as applicable, but also may be used in conjunction with instrument approach procedures predicted on other types of radio navigational aids. Radar vectors may be authorized to provide course guidance through the segments of an approach to the final course or fix. When operating on an unpublished route or while being radar vectored, the pilot, when an approach clearance is received, shall, in addition to complying with § 91.119, maintain the last altitude assigned to that pilot until the aircraft is established on a segment of a published route or instrument approach procedure unless a different altitude is assigned by ATC. After the aircraft is so established, published altitudes apply to descent within each succeeding route or approach segment unless a different altitude is assigned by ATC. Upon reaching the final approach course or fix, the pilot may either complete the instrument approach in accordance with a procedure approved for the facility or continue a surveillance or precision radar approach to a landing.

[(j) *Limitation on procedure turns.* In the case of a radar vector to a final approach course or fix, a timed approach from a holding fix, or an approach for which the procedure specifies "No PT", no pilot may make a procedure turn unless cleared to do so by ATC.

[(k) *ILS components.* The basic ground components of an ILS are the localizer, glide slope, outer marker, middle marker, and, when installed for use with Category II or Category III instrument approach procedures, an inner marker. A compass locator or precision radar may be substituted for the outer or middle marker. DME, VOR, or nondirectional beacon fixes authorized in the standard instrument approach procedure or surveillance radar may be substituted for the outer marker. Applicability of, and substitution for, the inner marker for Category II or III approaches is determined by the appropriate Part 97 approach procedure, letter of authorization, or operations specification pertinent to the operations.]

§ 91.117 [[Reserved]]

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§ § 91.119 Minimum altitudes for IFR operations.

(a) Except when necessary for takeoff or landing, or unless otherwise authorized by the Administrator, no person may operate an aircraft under IFR below—

(1) The applicable minimum altitudes prescribed in Parts 95 and 97 of this chapter; or

(2) If no applicable minimum altitude is prescribed in those Parts—

(i) In the case of operations over an area designated as a mountainous area in Part 95, an altitude of 2,000 feet above the highest obstacle within a horizontal distance of five statute miles from the course to be flown; or

(ii) In any other case, an altitude of 1,000 feet above the highest obstacle within a horizontal distance of five statute miles from the course to be flown.

However, if both a MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below, the MOCA, when within 25 statute miles of the VOR concerned (based on the pilot's reasonable estimate of that distance).

(b) *Climb.* Climb to a higher minimum IFR altitude shall begin immediately after passing the point beyond which that minimum altitude applies, except that, when ground obstructions intervene, the point beyond which the higher minimum altitude applies shall be crossed at or above the applicable MCA.

§ 91.121 IFR cruising altitude or flight level.

(a) *In controlled airspace.* Each person operating an aircraft under IFR in level cruising flight in controlled airspace shall maintain the altitude or flight level assigned that aircraft by ATC. However, if the ATC clearance assigns "VFR conditions-on-top," he shall maintain an altitude or flight level as prescribed by § 91.109.

(b) *In uncontrolled airspace.* Except while holding in a holding pattern of two minutes or less, or while turning, each person operating an aircraft under IFR in level cruising flight, in uncontrolled airspace, shall maintain an appropriate altitude as follows:

(1) When operating below 18,000 feet MSL and—

(i) On a magnetic course of zero degrees through 179 degrees, any odd thousand foot MSL altitude (such as 3,000, 5,000, or 7,000); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude (such as 2,000, 4,000, or 6,000).

(2) When operating at or above 18,000 feet MSL but below flight level 290, and—

(i) On a magnetic course of zero degrees through 179 degrees, any odd flight level (such as 190, 210, or 230); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any even flight level (such as 180, 200, or 220).

(3) When operating at flight level 290 and above, and—

(i) On a magnetic course of zero degrees through 179 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 290 (such as flight level 290, 330, or 370); or

(ii) On a magnetic course of 180 degrees through 359 degrees, any flight level, at 4,000-foot intervals, beginning at and including flight level 310 (such as flight level 310, 350, or 390).

§ 91.123 Course to be flown.

Unless otherwise authorized by ATC, no person may operate an aircraft within controlled airspace, under IFR, except as follows:

(a) On a Federal airway, along the centerline of that airway.

(b) On any other route, along the direct course between the navigational aids or fixes defining that route.

However, this section does not prohibit maneuering the aircraft to pass well clear of other air traffic or the maneuvering of the aircraft, in VFR conditions, to clear the intended flight path both before and during climb or descent.

§ 91.125 IFR radio communications.

The pilot in command of each aircraft operated under IFR in controlled airspace shall have a continuous watch maintained on the

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appropriate frequency and shall report by radio as soon as possible—

(a) The time and altitude of passing each designated reporting point, or the reporting points specified by ATC, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported;

(b) Any unforecast weather conditions encountered; and

(c) Any other information relating to the safety of flight.

§ 91.127 IFR operations; two-way radio communications failure.

(a) *General.* Unless otherwise authorized by ATC, each pilot who has two-way radio communications failure when operating under IFR shall comply with the rules of this section.

(b) *VFR conditions.* If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot shall continue the flight under VFR and land as soon as practicable.

(c) *IFR conditions.* If the failure occurs in IFR conditions, or if paragraph (b) of this section cannot be complied with, each pilot shall continue the flight according to the following:

(1) *Route.*

(i) By the route assigned in the last ATC clearance received;

(ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;

(iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or

(iv) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

(2) *Altitude.* At the highest of the following altitudes or flight levels for the route segment being flown:

(i) The altitude or flight level assigned in the last ATC clearance received;

(ii) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in § 91.81(c)) for IFR operations; or

(iii) The altitude or flight level ATC has advised may be expected in a further clearance.

[(3) *Leave clearance limit.* (i) When the clearance limit is a fix from which an approach begins, commence descent or descent and approach as close as possible to the expect further clearance time if one has been received, or if one has not been received, as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.

[(ii) If the clearance limit is not a fix from which an approach begins, leave the clearance limit at the expect further clearance time if one has been received, or if none has been received, upon arrival over the clearance limit, and proceed to a fix from which an approach begins and commence descent or descent and approach as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.]

§ 91.129 Operation under IFR in controlled airspace; malfunction reports.

(a) The pilot in command of each aircraft operated in controlled airspace under IFR, shall report immediately to ATC any of the following malfunctions of equipment occurring in flight:

(1) Loss of VOR, TACAN, ADF, or low frequency navigation receiver capability.

(2) Complete or partial loss of ILS receiver capability.

(3) Impairment of air/ground communications capability.

(b) In each report required by paragraph (a) of this section, the pilot in command shall include the—

(1) Aircraft identification;

(2) Equipment affected;

(3) Degree to which the capability of the pilot to operate under IFR in the ATC system is impaired; and

(4) Nature and extent of assistance he desires from ATC.

Subpart C—Maintenance, Preventive Maintenance, and Alterations

§ 91.161 Applicability.

(a) This subpart prescribes rules governing the maintenance, preventive maintenance, and alterations of U.S. registered civil aircraft operating within or without the United States.

[(b) Sections 91.165, 91.169, 91.171, 91.173, and 91.174 of this subpart do not apply to an aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in Part 121, 127, or § 135.411(a) (2) of this chapter.]

(c) Sections 91.165, 91.169, 91.171, and Subpart D of this Part do not apply to an airplane inspected in accordance with Part 125 of this chapter.

§ 91.163 General.

(a) The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition, including compliance with Part 39 of this chapter.

(b) No person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations, including Part 43.

(c) No person may operate an aircraft for which a manufacturer's maintenance manual or Instructions for Continued Airworthiness has been issued that contains an Airworthiness Limitations section unless the mandatory replacement times, inspection intervals, and related procedures specified in that section or alternative inspection intervals and related procedures set forth in an operations specification approved by the Administrator under Parts 121, 123, 127, or 135, or in accordance with an inspection program approved under § 91.217(e), have been complied with.

[§ 91.165 Maintenance required.

[Each owner or operator of an aircraft shall have that aircraft inspected as prescribed in §§ 91.169, 91.171, and 91.172 and shall, between required inspections, have discrepancies repaired as prescribed in Part 43 of this chapter. [In addition, each owner or operator shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating that the aircraft has been approved for return to service.

[§ 91.167 Operation after maintenance, preventive maintenance, rebuilding, or alteration.

[(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless—

[(1) It has been approved for return to service by a person authorized under § 43.7 of this chapter; and

[(2) The maintenance record entry required by § 43.9 or § 43.11, as applicable, of this chapter has been made.

[(b) No person may carry any person (other than crewmembers) in an aircraft that has been maintained, rebuilt, or altered in a manner that may have appreciably changed its flight characteristics or substantially affected its operation in flight until an appropriately rated pilot with at least a private pilot certificate flies the aircraft, makes an operational check of the maintenance performed or alteration made, and logs the flight in the aircraft records.

[(c) The aircraft does not have to be flown as required by paragraph (b) of this section if, prior to flight, ground tests, inspections, or both show conclusively that the maintenance, preventive maintenance, rebuilding, or alteration has not appreciably changed the flight characteristics or substantially affected the flight operation of the aircraft.]

[(Approved by the Office of Management and Budget under OMB control number 2120-0005)]

§ 91.169 Inspections.

(a) Except as provided in paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had—

(1) An annual inspection in accordance with Part 43 of this chapter and has been approved for return to service by a person authorized by § 43.7 of this chapter; or

(2) An inspection for the issue of an airworthiness certificate.

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No inspection performed under paragraph (b) of the section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections, and is entered as an 'annual' inspection in the required maintenance records.

(b) Except as provided in paragraph (c) of this section, no person may operate an aircraft carrying any person (other than a crewmember) for hire, and no person may give flight instruction for hire in an aircraft which that person provides, unless within the preceding 100 hours of time in service it has received an annual or 100-hour inspection and been approved for return to service in accordance with Part 43 of this chapter, or received an inspection for the issuance of an airworthiness certificate in accordance with Part 21 of this chapter. The 100-hour limitation may be exceeded by not more than 10 hours if necessary to reach a place at which the inspection can be done. The excess time, however, is included in computing the next 100 hours of time in service.

[(c) Paragraphs (a) and (b) of this section do not apply to—

[(1) An aircraft that carries a special flight permit, a current experimental certificate, or a provisional airworthiness certificate;

[(2) An aircraft inspected in accordance with an approved aircraft inspection program under Part 123, 125, or 135 of this chapter and so identified by the registration number in the operations specifications of the certificate holder having the approved inspection program; or

[(3) An aircraft subject to the requirements of paragraph (d) or (e) of this section.

[(d) *Progressive inspection.* Each registered owner or operator of an aircraft desiring to use a progressive inspection program must submit a written request to the FAA Flight Standards district office having jurisdiction over the area in which the applicant is located, and shall provide—

[(1) A certificated mechanic holding an inspection authorization, a certificated airframe repair station, or the manufacturer of the aircraft to supervise or conduct the progressive inspection;

[(2) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail—

[(i) An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;

[(ii) An inspection schedule, specifying the intervals in hours or days when routine and detailed inspections will be performed and including instructions for exceeding an inspection interval by not more than 10 hours while en route and for changing an inspection interval because of service experience;

[(iii) Sample routine and detailed inspection forms and instructions for their use; and

[(iv) Sample reports and records and instructions for their use;

[(3) Enough housing and equipment for necessary disassembly and proper inspection of the aircraft; and

[(4) Appropriate current technical information for the aircraft.

[The frequency and detail of the progressive inspection shall provide for the complete inspection of the aircraft within each 12-calendar months and be consistent with the manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged. The progressive inspection schedule must ensure that the aircraft, at all times, will be airworthy and will conform to all applicable FAA aircraft specifications, type certificate data sheets, airworthiness directives, and other approved data. If the progressive inspection is discontinued, the owner or operator shall immediately notify the local FAA Flight Standards district office, in writing, of the discontinuance. After the discontinuance, the first annual inspection under § 91.169(a) is due within 12 calendar months after the last complete inspection of the aircraft under the progressive inspection. The 100-hour inspection under § 91.169(b) is due within 100 hours after that complete inspection. A complete inspection of the aircraft, for the purpose of determining when the annual and 100-hour inspections are due, requires a detailed inspection of the aircraft and all its components in accordance with the progressive inspection. A routine inspection of the aircraft and a detailed inspection of several components is not considered to be a complete inspection.

[(e) *Large airplanes (to which Part 125 is not applicable), turbojet multiengine airplanes, and turbopropeller-powered multiengine airplanes.* No person may operate a large airplane, turbojet multiengine airplane, or turbopropeller-powered multiengine airplane unless the replacement times for life-limited parts specified in the aircraft specifications, type data sheets, or other documents approved by the Administrator are complied with and the airplane, including the airframe engines, propellers, appliances, survival equipment, and emergency equipment, is inspected in accordance with an inspection program selected under the provisions of paragraph (f) of this section.

[(f) *Selection of inspection programs under paragraph (e) of this section.* The registered owner or operator of each airplane described in paragraph (e) of this section must select, identify in the aircraft maintenance records, and use one of the following programs for the inspection of that airplane:

[(1) A continuous airworthiness inspection program that is part of a continuous airworthiness maintenance program currently in use by a person holding an air carrier operating certificate or an operating certificate issued under Part 121, 127, or 135 of this chapter and operating that make and model airplane under Part 121 or 127 or operating that make and model under Part 135 and maintaining it under § 135.411(a) (2).

[(2) An approved aircraft inspection program approved under § 135.419 of this chapter and currently in use by a person holding an operating certificate issued under Part 135.

[(3) An approved continuous inspection program currently in use by a person certificated under Part 123 of this chapter.

[(4) A current inspection program recommended by the manufacturer.

[(5) Any other inspection program established by the registered owner or operator of that airplane and approved by the Administrator under paragraph (g) of this section. However, the Administrator may require revision to this inspection program in accordance with the provisions of § 91.170.

[Each operator shall include in the selected program the name and address of the person responsible for scheduling the inspections required by the program and make a copy of that program available to the person performing inspections on the airplane and, upon request, to the Administrator.

[(g) *Inspection program approval under paragraph (e) of this section.* Each operator of an airplane desiring to establish or change an approved inspection program under paragraph (f) (5) of this section must submit the program for approval to the local FAA Flight Standards district office having jurisdiction over the area in which the airplane is based. The program must be in writing and include at least the following information:

[(1) Instruction and procedures for the conduct of inspections for the particular make and model airplane, including necessary tests and checks. The instructions and procedures must set forth in detail the parts and areas of the airframe, engines, propellers, and appliances, including survival and emergency equipment required to be inspected.

[(2) A schedule for performing the inspections that must be performed under the program expressed in terms of the time in service, calendar time, number of system operations, or any combination of these.

[(h) *Changes from one inspection program to another.* When an operator changes from one inspection program under paragraph (f) of this section to another, the time in service, calendar times, or cycles of operation accumulated under the previous program must be applied in determining inspection due times under the new program.]

[(Approved by the Office of Management and Budget under OMB control number 2120-0005)]

[§ 91.170 Changes to aircraft inspection programs.

[(a) Whenever the Administrator finds that revisions to an approved aircraft inspection program under § 91.169(f) (5) are necessary for the continued adequacy of the program, the owner or operator shall, after notification by the Administrator, make any changes in the program found to be necessary by the Administrator.

[(b) The owner or operator may petition the Administrator to reconsider the notice to make any changes in a program in accordance with paragraph (a) of this section.

[(c) The petition must be filed with the FAA Flight Standards district office which requested the change to the program within 30 days after the certificate holder receives the notice.

[(d) Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Administrator.

[§ 91.171 Altimeter system and altitude reporting equipment tests and inspections.

[(a) No person may operate an airplane in controlled airspace under IFR unless—

[(1) Within the preceding 24 calendar months, each static pressure system, each altimeter instrument, and each automatic pressure altitude reporting system has been tested and inspected and found to comply with Appendices E and F of Part 43 of this chapter;

[(2) Except for the use of system drain and alternate static pressure valves, following any opening and closing of the static pressure system, that system has been tested and inspected and found to comply with paragraph (a), Appendix E, of Part 43 of this chapter; and

[(3) Following installation or maintenance on the automatic pressure altitude reporting system or the ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), Appendix E, of Part 43 of this chapter.

[(b) The tests required by paragraph (a) of this section must be conducted by—

[(1) The manufacturer of the airplane on which the tests and inspections are to be performed;

[(2) A certificated repair station properly equipped to perform those functions and holding—

[(i) An instrument rating, Class I;

[(ii) A limited instrument rating appropriate to the make and model of appliance to be tested;

[(iii) A limited rating appropriate to the test to be performed;

[(iv) An airframe rating appropriate to the airplane to be tested; or

[(v) A limited rating for a manufacturer issued for the appliance in accordance with § 145.101(b) (4) of this chapter; or

[(3) A certificated mechanic with an airframe rating (static pressure system tests and inspections only).

[(c) Altimeter and altitude reporting equipment approved under Technical Standard Orders are considered to be tested and inspected as of the date of their manufacture.

[(d) No person may operate an airplane in controlled airspace under IFR at an altitude above the maximum altitude at which all altimeters and the automatic altitude reporting system of that airplane have been tested.

[§ 91.172 ATC transponder tests and inspections.

[(a) No person may use an ATC transponder that is specified in Part 125, § 91.24(a), § 121.345(c), § 127.123(b) or § 135.143(c) of this chapter unless, within the preceding 24 calendar months, that ATC transponder has been tested and inspected and found to comply with Appendix F of Part 43 of this chapter; and

[(b) Following any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with paragraph (c), Appendix E, of Part 43 of this chapter.

[(c) The tests and inspections specified in this section must be conducted by—

[(1) A certificated repair station properly equipped to perform those functions and holding—

[(i) A radio rating, Class III;

[(ii) A limited rating appropriate to the make and model transponder to be tested;

[(iii) A limited rating appropriate to the test to be performed;

[(iv) A limited rating for a manufacturer issued for the transponder in accordance with § 145.101(b) (4) of this chapter; or

[(2) A holder of a continuous airworthiness maintenance program as provided in Part 121, 127, or § 135.411(a) (2) of this chapter; or

[(3) The manufacturer of the aircraft on which the transponder to be tested is installed, if the transponder was installed by that manufacturer.]

§ 91.173 Maintenance records.

(a) Except for work performed in accordance with [§ 91.171], each registered owner or operator shall keep the following records for the periods specified in paragraph (b) of this section:

(1) Records of the maintenance and alteration, and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include—

(i) A description (or reference to data acceptable to the Administrator) of the work performed;

(ii) The date of completion of the work performed; and

(iii) The signature and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine and each propeller.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The identification of the current inspection status of the aircraft, including the times since the last inspections required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) including, for each, the method of compliance, the AD number, and revision date. If the AD involves recurring action, the time and date when the next action is required.

[(vi) Copies of the forms prescribed by § 43.9(a) of this chapter for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.]

(b) The owner and operator shall retain the following records for the periods prescribed:

(1) The records specified in paragraph (a) (1) of this section shall be retained until the work is repeated or superseded by other work or for one year after the work is performed.

(2) The records specified in paragraph (a) (2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator under [§ 43.11] of this chapter, shall be retained until the defects are repaired and the aircraft is approved for return to service.

(c) The owner or operator shall make all maintenance records required to be kept by this section available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

[(Approved by the Office of Management and Budget under OMB control number 2120–0005)]

§ 91.174 Transfer of maintenance records.

Any owner or operator who sells a U.S. registered aircraft shall transfer to the purchaser, at the time of sale, the following records of that aircraft, in plain language form or in coded form at the election of the purchaser, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Administrator:

(a) The records specified in § 91.173(a) (2).

(b) The records specified in § 91.173(a) (1) which are not included in the records covered by paragraph (a) of this section, except that the purchaser may permit the seller to keep physical custody of such records. However, custody of records in the seller does not relieve the purchaser of his responsibility under § 91.173(c), to make the records available for inspection by the Administrator or any authorized representative of the National Transportation Safety Board (NTSB).

§ 91.175 Rebuilt engine maintenance records.

(a) The owner or operator may use a new maintenance record, without previous operating history, for an aircraft engine rebuilt by the manufacturer or by an agency approved by the manufacturer.

(b) Each manufacturer or agency that grants zero time to an engine rebuilt by it shall enter, in the new record—

(1) A signed statement of the date the engine was rebuilt;

(2) Each change made as required by Airworthiness Directives; and

(3) Each change made in compliance with manufacturer's service bulletins, if the entry is specifically requested in that bulletin.

(c) For the purposes of this section, a rebuilt engine is a used engine that has been completely disassembled, inspected, repaired as necessary, reassembled, tested, and approved in the same manner and to the same tolerances and limits as a new engine with either new or used parts. However, all parts used in it must conform to the production drawing tolerances and limits for new parts or be of approved oversized or undersized dimensions for a new engine.

[§ 91.177 [Reserved.]]

Subpart D—Large and Turbine-Powered Multiengine Airplanes

§ 91.181 Applicability.

(a) Sections 91.181 through 91.215 prescribe operating rules, in addition to those prescribed in other subparts of this Part, governing the operation of large and of turbojet-powered multiengine civil airplanes of U.S. registry. The operating rules in this subpart do not apply to those airplanes when they are required to be operated under Parts 121, 123, 125, 129, 135, and 137 of this chapter. [Section 91.169 prescribes an inspection program for large and for turbine-powered (turbojet and turboprop) multiengine airplanes of U.S. registry when they are operated under this Part or Parts 129 or 137.]

(b) Operations that may be conducted under the rules in this subpart instead of those in Parts 121, 123, 129, 135, and 137 when common carriage is not involved, include—

(1) Ferry or training flights;

(2) Aerial work operations such as aerial photography or survey, or pipeline patrol, but not including fire fighting operations;

(3) Flights for the demonstration of an airplane to prospective customers when no charge is made except for those specified in paragraph (d) of this section;

(4) Flights conducted by the operator of an airplane for his personal transportation, or the transportation of his guests when no charge, assessment, or fee is made for the transportation;

(5) The carriage of officials, employees, guests, and property of a company on an airplane operated by that company, or the parent or a subsidiary of that company or a subsidiary of the parent, when the carriage is within the scope of, and incidental to, the business of the company (other than transportation by air) and no charge, assessment or fee is made for the carriage in excess of the cost of owning, operating, and maintaining the airplane, except that no charge of any kind may be made for the carriage of a guest of a company, when the carriage is not within the scope of, and incidental to, the business of that company;

(6) The carriage of company officials, employees, and guests of the company on an airplane operated under a time sharing, interchange, or joint ownership agreement as defined in paragraph (c) of this section;

(7) The carriage of property (other than mail) on an airplane operated by a person in the furtherance of a business or employment (other than transportation by air) when the carriage is within the scope of, and incidental to, that business or employment and no charge, assessment, or fee is made for the carriage other than those specified in paragraph (d) of this section;

(8) The carriage on an airplane of an athletic team, sports group, choral group, or similar group having a common purpose or objective when there is no charge, assessment, or fee of any kind made by any person for that carriage; and

(9) The carriage of persons on an airplane operated by a person in the furtherance of a business other than transportation by air for the purpose of selling to them land, goods, or property, including franchises or distributorships, when the carriage is within the scope of, and incidental to, that business and no charge, assessment, or fee is made for that carriage.

(c) As used in this section—

(1) A "time sharing agreement" means an arrangement whereby a person leases his airplane with flight crew to another person, and no charge is made for the flights conducted under that arrangement other than those specified in paragraph (d) of this section;

(2) An "interchange agreement" means an arrangement whereby a person leases his airplane to another person in exchange for equal time, when needed, on the other person's airplane, and no charge, assessment, or fee is made, except that a charge may be made not to exceed the difference between the cost of owning, operating, and maintaining the two airplanes;

(3) A "joint ownership agreement" means an arrangement whereby one of the registered joint owners of an airplane employs and furnishes the flight crew for that airplane and each of the registered joint owners pays a share of the charges specified in the agreement.

(d) The following may be charged, as expenses of a specific flight, for transportation as authorized by subparagraphs (b) (3) and (7) and (c) (1) of this section:

(1) Fuel, oil, lubricants, and other additives.

(2) Travel expenses of the crew, including food, lodging, and ground transportation.

(3) Hangar and tie-down costs away from the aircraft's base of operations.

(4) Insurance obtained for the specific flight.

(5) Landing fees, airport taxes, and similar assessments.

(6) Customs, foreign permit, and similar fees directly related to the flight.

(7) In flight food and beverages.

(8) Passenger ground transportation.

(9) Flight planning and weather contract services.

(10) An additional charge equal to 100 percent of the expenses listed in subparagraph (1) of this paragraph.

§ 91.183 Flying equipment and operating information.

(a) The pilot in command of an airplane shall insure that the following flying equipment and aeronautical charts and data, in current and appropriate form, are accessible for each flight at the pilot station of the airplane:

(1) A flashlight having at least two size "D" cells, or the equivalent, that is in good working order.

(2) A cockpit checklist containing the procedures required by paragraph (b) of this section.

(3) Pertinent aeronautical charts.

(4) For IFR, VFR over-the-top, or night operations, each pertinent navigational en route, terminal area, and approach and letdown chart.

(5) In the case of multiengine airplanes, one-engine inoperative climb performance data.

(b) Each cockpit checklist must contain the following procedures and shall be used by the flight crewmembers when operating the airplane:

(1) Before starting engines.

(2) Before takeoff.

(3) Cruise.

(4) Before landing.

(5) After landing.

(6) Stopping engines.

(7) Emergencies.

(c) Each emergency cockpit checklist procedure required by paragraph (b) (7) of this section must contain the following procedures, as appropriate:

(1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.

(2) Emergency operation of instruments and controls.

(3) Engine inoperative procedures.

(4) Any other procedures necessary for safety.

(d) The equipment, charts, and data prescribed in this section shall be used by the pilot in command and other members of the flight crew, when pertinent.

§ 91.185 Familiarity with operating limitations and emergency equipment.

(a) Each pilot in command of an airplane shall, before beginning a flight, familiarize himself with the airplane flight manual for that airplane, if one is required, and with any placards, listings, instrument markings, or any combination thereof, containing each operating limitation prescribed for that airplane by the Administrator, including those specified in § 91.31(b).

(b) Each required member of the crew shall, before beginning a flight, familiarize himself with the emergency equipment installed on the airplane to which he is assigned and with the procedures to be followed for the use of that equipment in an emergency situation.

§ 91.187 Equipment requirements: over-the-top, or night VFR operations.

No person may operate an airplane over-the-top, or at night under VFR unless that airplane is equipped with the instruments and equipment required for IFR operations under § 91.33(d) and one electric landing light for night operations. Each required instrument and item of equipment must be in operable condition.

§ 91.189 Survival equipment for overwater operations.

(a) No person may takeoff an airplane for a flight over water more than 50 nautical miles from the nearest shoreline, unless that airplane is equipped with a life preserver or an approved flotation means for each occupant of the airplane.

(b) No person may take off an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shoreline, unless it has on board the following survival equipment:

(1) A life preserver equipped with an approved survivor locator light, for each occupant of the airplane.

(2) Enough liferafts (each equipped with an approved survival locator light) of a rated capacity and buoyancy to accommodate the occupants of the airplane.

(3) At least one pyrotechnic signaling device for each raft.

(4) One self-buoyant, water-resistant, portable emergency radio signaling device, that is capable of transmission on the appropriate emergency frequency or frequencies, and not dependent upon the airplane power supply.

(5) After June 26, 1979, a lifeline stored in accordance with § 25.1411(g) of this chapter.

(c) The required liferafts, life preservers, and signaling devices must be installed in conspicuously marked locations and easily accessible in the event of a ditching without appreciable time for preparatory procedures.

(d) A survival kit, appropriately equipped for the route to be flown, must be attached to each required liferaft.

§ 91.191 Radio equipment for overwater operations.

(a) Except as provided in paragraphs (c) and (d) of this section, no person may takeoff an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shoreline, unless it has at least the following operable radio communication and navigational equipment appropriate to the facilities to be used and able to transmit to, and receive from, at any place on the route, at least one surface facility:

(1) Two transmitters.

(2) Two microphones.

(3) Two headsets or one headset and one speaker.

(4) Two independent receivers for navigation.

(5) Two independent receivers for communications.

However, a receiver that can receive both communications and navigational signals may be used in place of a separate communications receiver and a separate navigational signal receiver.

(b) For the purposes of paragraphs (a) (4) and (5) of this section, a receiver is independent if the function of any part of it does not depend on the functioning of any part of another receiver.

(c) Notwithstanding the provisions of paragraph (a) of this section, a person may operate an airplane on which no passengers are carried from a place where repairs or replacement cannot be made to a place where they can be made, if not more than one of each of the dual items of radio communication and navigation equipment specified in subparagraphs (1)–(5) of paragraph (a) of this section malfunctions or becomes inoperative.

(d) Notwithstanding the provisions of paragraph (a) of this section, when both VHF and HF communications equipment are required for the route and the airplane has two VHF transmitters and two VHF receivers for communications, only one HF transmitter and one HF receiver is required for communications.

§ 91.193 Emergency equipment.

(a) No person may operate an airplane unless it is equipped with the emergency equipment listed in this section:

(b) Each item of equipment—

(1) Must be inspected in accordance with § 91.217 to ensure its continued serviceability and immediate readiness for its intended purposes;

(2) Must be readily accessible to the crew;

(3) Must clearly indicate its method of operation; and

(4) When carried in a compartment or container, must have that compartment or container marked as to contents and date of last inspection.

(c) Hand fire extinguishers must be provided for use in crew, passenger, and cargo compartments in accordance with the following:

(1) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used.

(2) At least one hand fire extinguisher must be provided and located on or near the flight deck in a place that is readily accessible to the flight crew.

(3) At least one hand fire extinguisher must be conveniently located in the passenger compartment of each airplane accommodating more than six but less than 31 passengers, and at least two hand fire extinguishers must be conveniently located in the passenger compartment of each airplane accommodating more than 30 passengers.

[(4) Hand fire extinguishers must be installed and secured in such a manner that they will not interfere with the safe operation of the airplane or adversely affect the safety of the crew and passengers. They must be readily accessible, and unless the locations of the fire extinguishers are obvious, their stowage provisions must be properly identified.]

(d) First aid kits for treatment of injuries likely to occur in flight or in minor accidents must be provided.

(e) Each airplane accommodating more than 19 passengers must be equipped with a crash ax.

(f) Each passenger-carrying airplane must have a portable battery-powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation, installed as follows:

(1) One megaphone on each airplane with a seating capacity of more than 60 but less than 100 passengers, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Administrator may grant a deviation from the requirements of this subparagraph if he finds that a different location would be more useful for evacuation of persons during an emergency.

(2) Two megaphones in the passenger cabin on each airplane with a seating capacity of more than 99 passengers, one installed at the forward end and the other at the most rearward location where it would be readily accessible to a normal flight attendant seat.

§ 91.195 Flight altitude rules.

(a) Notwithstanding § 91.179, and except as provided in paragraph (b) of this section, no person may operate an airplane under VFR at less than—

(1) One thousand feet above the surface, or 1,000 feet from any mountain, hill, or other obstruction to flight, for day operations; and

(2) The altitudes prescribed in § 91.119, for night operations.

(b) This section does not apply—

(1) During takeoff or landing;

(2) When a different altitude is authorized by a waiver to this section under § 91.63; or

(3) When a flight is conducted under the special VFR weather minimums of § 91.107 with an appropriate clearance from ATC.

§ 91.197 Smoking and safety belt signs.

(a) Except as provided in paragraph (b) of this section, no person may operate an airplane carrying passengers unless it is equipped with signs that are visible to passengers and cabin attendants to notify them when smoking is prohibited and when safety belts should be fastened. The signs must be so constructed that the crew can turn them on and off. They must be turned on for each takeoff and each landing and when otherwise considered to be necessary by the pilot in command.

(b) The pilot in command of an airplane that is not equipped as provided in paragraph (a) of this section shall insure that the passengers are orally notified each time that it is necessary to fasten their safety belts and when smoking is prohibited.

§ 91.199 Passenger briefing.

(a) Before each takeoff the pilot in command of an airplane carrying passengers shall ensure that all passengers have been orally briefed on:

(1) Smoking;

(2) Use of safety belts;

(3) Location and means for opening the passenger entry door and emergency exits;

(4) Location of survival equipment;

(5) Ditching procedures and the use of flotation equipment required under § 91.189 for a flight over water; and

(6) The normal and emergency use of oxygen equipment installed on the airplane.

(b) The oral briefing required by paragraph (a) of this section shall be given by the pilot in command or a member of the crew, but need not be given when the pilot in command determines that the passengers are familiar with the contents of the briefing. It may be supplemented by printed cards for the use of each passenger containing—

(1) A diagram of, and methods of operating, the emergency exits; and

(2) Other instructions necessary for use of emergency equipment.

Each card used under this paragraph must be carried in convenient locations on the airplane for use of each passenger and must contain information that is pertinent only to the type and model airplane on which it is used.

[§ 91.200 Shoulder harness.

[(a) No person may operate a transport category airplane that was type certificated after January 1, 1958, unless it is equipped at each seat at a flight-deck station with a combined safety belt and shoulder harness that meets the applicable requirements in § 25.785 of this chapter, except that—

[(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, may continue to be used; and

[(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

[(b) No person may operate a transport category airplane unless it is equipped at each required flight attendant seat in the passenger compartment with a combined safety belt and shoulder harness that meets the applicable requirements specified in § 25.785 of this chapter, except that—

[(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, may continue to be used; and

[(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.]

§ 91.201 Carry-on-baggage.

No pilot in command of an airplane having a seating capacity of more than 19 passengers may permit a passenger to stow his baggage aboard that airplane except—

(a) In a suitable baggage or cargo storage compartment, or as provided in § 91.203; or

(b) Under a passenger seat in such a way that it will not slide forward under crash impacts severe enough to induce the ultimate inertia forces specified in § 25.561(b) (3) of this chapter, or the requirements of the regulations under which the airplane was type certificated. After December 4, 1979 restraining devices must also limit sideward motion of under-seat baggage and be designed to withstand crash impacts severe enough to induce sideward forces specified in § 25.561(b) (3) of this chapter.

§ 91.203 Carriage of cargo.

(a) No pilot in command may permit cargo to be carried in any airplane unless—

(1) It is carried in an approved cargo rack, bin, or compartment installed in the airplane;

(2) It is secured by means approved by the Administrator; or

(3) It is carried in accordance with each of the following:

(i) It is properly secured by a safety belt or other tiedown having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.

(ii) It is packaged or covered to avoid possible injury to passengers.

(iii) It does not impose any load on seats or on the floor structure that exceeds the load limitation for those components.

(iv) It is not located in a position that restricts the access to or use of any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment.

(v) It is not carried directly above seated passengers.

(b) When cargo is carried in cargo compartments that are designed to require the physical

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entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand fire extinguisher.

§ 91.205 Transport category airplane weight limitations.

No person may takeoff a transport category airplane, except in accordance with the weight limitations prescribed for that airplane in § 91.37 of this Part.

§ 91.207 [Deleted.]

§ 91.209 Operating in icing conditions.

(a) No pilot may take off an airplane that has—

(1) Frost, snow, or ice adhering to any propeller, windshield, or power plant installation, or to an airspeed, altimeter, rate of climb, of flight attitude instrument system;

(2) Snow or ice adhering to the wings, or stabilizing or control surfaces; or

(3) Any frost adhering to the wings, or stabilizing or control surfaces, unless that frost has been polished to make it smooth.

(b) Except for an airplane that has ice protection provisions that meet the requirements in section 34 of Special Federal Aviation Regulation No. 23, or those for transport category airplane type certification, no pilot may fly—

(1) Under IFR into known or forecast moderate icing conditions; or

(2) Under VFR into known light or moderate icing conditions; unless the aircraft has functioning de-icing or anti-icing equipment protecting each propeller, windshield, wing, stabilizing or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system.

(c) Except for an airplane that has ice protection provisions that meet the requirements in section 34 of Special Federal Aviation Regulation No. 23, or those for transport category airplane type certification, no pilot may fly an airplane into known or forecast severe icing conditions.

(d) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing conditions that would otherwise prohibit the flight will not be encountered during the flight because of changed weather conditions since the forecast, the restrictions in paragraph (b) and (c) of this section based on forecast conditions do not apply.

§ 91.211 Flight engineer requirements.

(a) No person may operate the following airplanes without a flight crewmember holding a current flight engineer certificate:

(1) An airplane for which a type certificate was issued before January 2, 1964, having a maximum certificated takeoff weight of more than 80,000 pounds.

(2) An airplane type certificated after January 1, 1964, for which a flight engineer is required by the type certification requirements.

(b) No person may serve as a required flight engineer on an airplane unless, within the preceding 6 calendar months, he has had at least 50 hours of flight time as a flight engineer on that type airplane, or the Administrator has checked him on that type airplane and determined that he is familiar and competent with all essential current information and operating procedures.

§ 91.213 Second in command requirements.

(a) Except as provided in paragraph (b) of this section, no person may operate the following airplanes without a pilot who is designated as second in command of that airplane:

[(1) A large airplane, except that a person may operate an airplane certificated under SFAR 41 without a pilot who is designated as second in command if that airplane is certificated for operation with one pilot.]

(2) A turbojet-powered multiengine airplane for which two pilots are required under the type certification requirements for that airplane.

(b) The Administrator may issue a letter of authorization for the operation of an airplane without compliance with the requirements of paragraph (a) of this section if that airplane is designed for and type certificated with only one pilot station. The authorization contains any conditions that the Administrator finds necessary for safe operation.

(c) No person may designate a pilot to serve as second in command nor may any pilot serve as second in command of an airplane required under this section to have two pilots, unless that pilot meets the qualifications for second in command prescribed in § 61.55 of this chapter.

§ 91.215 Flight attendant requirements.

(a) No person may operate an airplane unless at least the following number of flight attendants are on board the airplane:

(1) For airplanes having more than 19 but less than 51 passengers on board—one flight attendant.

(2) For airplanes having more than 50 but less than 101 passengers on board—two flight attendants.

(3) For airplanes having more than 100 passengers on board—two flight attendants plus one additional flight attendant for each unit (or part of a unit) of 50 passengers above 100.

(b) No person may serve as a flight attendant on an airplane when required by paragraph (a) of this section, unless that person has demonstrated to the pilot in command that he is familiar with the necessary functions to be performed in an emergency or a situation requiring emergency evacuation and is capable of using the emergency equipment installed on that airplane for the performance of those functions.

[§ 91.217 [Reserved.]]

[§ 91.219 [Reserved.]]

Subpart E—Operating Noise Limits

§ 91.301 Applicability; relation to Part 36.

(a) This subpart prescribes operating noise limits and related requirements that apply, as follows, to the operation of civil aircraft in the United States:

(1) Sections 91.302, 91.303, 91.305, 91.306, and 91.307 apply to civil subsonic turbojet airplanes with maximum weights of more than 75,000 pounds and—

(i) If U.S. registered, that have standard airworthiness certificates; or

(ii) If foreign registered, that would be required by this chapter to have a U.S. standard airworthiness certificate in order to conduct the operations intended for the airplane were it registered in the United States.

Those sections apply to operations to or from airports in the United States under this Part and Parts 121, 123, 125, 129, and 135 of this chapter.

(2) Section 91.308 applies to U.S. operators of civil subsonic turbojet airplanes covered by this subpart. That section applies to operators operating to or from airports in the United States under this Part and Parts 121, 123, 125, and 135 but not to those operating under Part 129 of this chapter.

(3) Sections 91.302, 91.309 and 91.311 apply to U.S. registered civil supersonic airplanes having standard airworthiness certificates, and to foreign registered civil supersonic airplanes that, if registered in the United States, would be required by this chapter to have a U.S. standard airworthiness certificate in order to conduct the operations intended for the airplane. Those sections apply to operations under this Part and under Parts 121, 123, 125, 129, and 135 of this chapter.

(b) Unless otherwise specified, as used in this subpart "Part 36" refers to 14 CFR Part 36, including the noise levels under Appendix C of that Part, notwithstanding the provisions of that Part excepting certain airplanes from the specified noise requirements. For purposes of this subpart, the various stages of noise levels, the terms used to describe airplanes with respect to those levels, and the terms "subsonic airplane" and "supersonic airplane" have the meanings specified under Part 36 of this chapter. For purposes of this subpart, for subsonic airplanes operated in foreign air commerce in the United States, the Administrator may accept compliance with the noise requirements under Annex 16 of the International Civil Aviation Organization when those requirements have been shown to be substantially compatible with, and achieve results equivalent to those achievable under, Part 36 for that airplane. Determinations made under these provisions are subject to the limitations of § 36.5 of this chapter as if those noise levels were Part 36 noise levels.

(c) [Reserved]

§ 91.302 Part 125 operators: designation of applicable regulations.

For airplanes covered by this subpart and operated under Part 125, the following regulations apply as specified:

(a) For each airplane operation to which requirements prescribed under this subpart applied before November 29, 1980, those requirements of this subpart continue to apply.

(b) For each subsonic airplane operation to which requirements prescribed under this subpart did not apply before November 29, 1980, because the airplane was not operated in the United States under this Part or Part 121, 123, 129, or 135, the requirements prescribed under §§ 91.303, 91.306, 91.307, and 91.308 of this subpart apply.

(c) For each supersonic airplane operation to which requirements prescribed under this subpart did not apply before November 29, 1980, because the airplane was not operated in the United States under this Part or Part 121, 123, 129, or 135, the requirements of §§ 91.309 and 91.311 of this subpart apply.

(d) For each airplane required to operate under Part 125 for which a deviation under that Part is approved to operate, in whole or in part, under this Part or Parts 121, 123, 129, or 135, notwithstanding the approval, the requirements prescribed under paragraphs (a), (b), and (c) of this section continue to apply.

§ 91.303 Final compliance: subsonic airplanes.

Except as provided in §§ 91.306 and 91.307, on and after January 1, 1985, no person may operate to or from an airport in the United States any subsonic airplane covered by this subpart, unless that airplane has been shown to comply with Stage 2 or Stage 3 noise levels under Part 36 of this chapter.

§ 91.305 Phased compliance under Parts 121, 125, and 135: subsonic airplanes.

(a) *General.* Each person operating airplanes under Parts 121 or 135 of this chapter, or under Part 125 of this chapter, as prescribed under § 91.302 of this subpart regardless of the State of registry of the airplane, shall comply with this section with respect to subsonic airplanes covered by this subpart.

(b) *Compliance schedule.* Except for airplanes shown to be operated in foreign air commerce under paragraph (c) of this section or covered by an exemption (including those issued under § 91.307), airplanes operated by U.S. operators in air commerce in the United States must be shown to comply with Stage 2 or Stage 3 noise levels under Part 36, in accordance with the following schedule, or they may not be operated to or from airports in the United States:

(1) By January 1, 1981:

(i) At least one quarter of the airplanes that have four engines with no bypass ratio or with a bypass ratio less than two.

(ii) At least half of the airplanes powered by engines with any other bypass ratio or by another number of engines.

(2) By January 1, 1983:

(i) At least one half of the airplanes that have four engines with no bypass ratio or with bypass ratio less than two.

(ii) All airplanes powered by engines with any other bypass ratio or by another number of engines.

(c) *Apportionment of airplanes.* For purposes of paragraph (b) of this section, a person operating airplanes engaged in domestic and foreign air commerce in the United States may elect not to comply with the phased schedule with respect to that portion of the airplanes operated by that person shown, under an approved method of apportionment, to be engaged in foreign air commerce in the United States.

§ 91.306 Replacement airplanes.

A Stage 1 airplane may be operated after the otherwise applicable compliance dates prescribed under §§ 91.303 and 91.305 if, under an approved plan, a replacement airplane has been ordered by the operator under a binding contract as follows:

(a) For replacement of an airplane powered by two engines, until January 1, 1986, but not after the date specified in the plan, if the contract is entered into by January 1, 1983, and specifies delivery before January 1, 1986, of a replacement airplane which has been shown to comply with Stage 3 noise levels under Part 36 of this chapter.

(b) For replacement of an airplane powered by three engines, until January 1, 1985, but not after the date specified in the plan, if the contract is entered into by January 1, 1983, and specifies delivery before January 1, 1985, of a replacement airplane which has been shown to comply with Stage 3 noise levels under Part 36 of this chapter.

(c) For replacement of any other airplane, until January 1, 1985, but not after the date specified in the plan, if the contract specifies delivery before January 1, 1985, of a replacement airplane which—

(1) Has been shown to comply with Stage 2 or Stage 3 noise levels under Part 36 of this chapter prior to issuance of an original standard airworthines certificate; or

(2) Has been shown to comply with Stage 3 noise levels under Part 36 of this chapter prior to issuance of a standard airworthiness certificate other than original issue.

(d) Each operator of a Stage 1 airplane for which approval of a replacement plan is requested under this section shall submit to the FAA Director of the Office of Environement and Energy an application constituting the proposed replacement plan (or revised plan) that contains the information specified under this paragraph and which is certified (under penalty of 18 U.S.C. § 1001) as true and correct. Each application for approval must provide information corresponding to that specified in the contract, upon which the FAA may rely in considering its approval, as follows:

(1) Name and address of the applicant.

(2) Aircraft type and model and registration number for each airplane to be replaced under the plan.

(3) Aircraft type and model of each replacement airplane.

(4) Scheduled dates of delivery and introduction into service of each replacement airplane.

(5) Name and address of the parties to the contract and any other persons who may effectively cancel the contract or otherwise control the performance of any party.

(6) Information specifying the anticipated disposition of the airplanes to be replaced.

(7) A statement that the contract represents a legally enforceable, mutual agreement for delivery of an eligible replacement airplane.

(8) Any other information or documentation requested by the Director, Office of Environment and Energy reasonably necessary to determine whether the plan should be approved.

§ 91.307 Service to small communities exemption: two-engine, subsonic airplanes.

(a) A Stage 1 airplane powered by two engines may be operated after the compliance dates prescribed under §§ 91.303, 91.305, and 91.306, when, with respect to that airplane, the Administrator issues an exemption to the operator from the noise level requirements under this subpart. Each exemption issued under this section terminates on the earlier of the following dates—

(1) For an exempted airplane sold, or otherwise disposed of, to another person on or after January 1, 1983—on the date of delivery to that person;

(2) For an exempted airplane with a seating configuration of 100 passenger seats or less—on January 1, 1988; or

(3) For an exempted airplane with a seating configuration of more than 100 passenger seats—on January 1, 1985.

(b) For purposes of this section, the seating configuration of an airplane is governed by that shown to exist on December 1, 1979, or an earlier date established for that airplane by the Administrator.

§ 91.308 Compliance plans and status: U.S. operators of subsonic airplanes.

(a) Each U.S. operator of a civil subsonic airplane covered by this subpart (regardless of the State of registry) shall submit to the FAA, Director of the Office of Environment and Energy, in accordance with this section, the operator's current compliance status and plan for achieving and maintaining compliance with the applicable noise level requirements of this subpart. If appropriate, an operator may substitute for the required plan a notice, certified as true (under penalty of 18 U.S.C. § 1001) by that operator, that no change in the plan or status of any airplane affected by the plan has occurred since the date of the plan most recently submitted under this section.

(b) Each compliance plan, including any revised plans, must contain the information specified under paragraph (c) of this section for each airplane covered by this section that is operated by the operator. Unless otherwise approved by the Administrator, compliance plans must provide the required plan and status information as it exists on the date 30 days before the date specified for submission of the plan. Plans must be certified by the operator as true and complete (under penalty of 18 U.S.C. § 1001) and be submitted for each airplane covered by this section on or before the following dates—

(1) May 1, 1980 or 90 days after initially commencing operation of airplanes covered by this section, whichever is later, and thereafter—

(2) Thirty days after any change in the operator's fleet or compliance planning decisions that has a separate or cumulative effect on 10 percent or more of the airplanes in either class of airplanes covered by § 91.305(b); and

(3) Thirty days after each compliance date applicable to that airplane type under this subpart and annually thereafter through 1985 or until any later compliance date for that airplane prescribed under this subpart, on the anniversary of that submission date, to show continuous compliance with this subpart.

(c) Each compliance plan submitted under this section must identify the operator and include information regarding the compliance plan and status for each airplane covered by the plan as follows:

(1) Name and address of the airplane operator.

(2) Name and telephone number of the person designated by the operator to be responsible for the preparation of the compliance plan and its submission.

(3) The total number of airplanes covered by this section and in each of the following classes and subclasses:

(i) Airplanes engaged in domestic air commerce.

(A) Airplanes powered by four turbojet engines with no bypass ratio or with a bypass ratio less than two.

(B) Airplanes powered by engines with any other bypass ratio or by another number of engines.

(C) Airplanes covered by an exemption issued under § 91.307 of this subpart.

(ii) Airplanes engaged in foreign air commerce under an approved apportionment plan.

(A) Airplanes powered by four turbojet engines with no bypass ratio or with a bypass ratio less than two.

(B) Airplanes powered by engines with any other bypass ratio or by another number of engines.

(C) Airplanes covered by an exemption issued under § 91.307 of this subpart.

(4) For each airplane covered by this section—

(i) Aircraft type and model;

(ii) Aircraft registration number;

(iii) Aircraft manufacturer serial number;

(iv) Aircraft power plant make and model;

(v) Aircraft year of manufacture;

(vi) Whether Part 36 noise level compliance has been shown: Yes/No;

(vii) [Reserved];

(viii) The appropriate code prescribed under paragraph (c)(5) of this section which indicates the acoustical technology installed, or to be installed, on the airplane;

(ix) For airplanes on which acoustical technology has been or will be applied, following the appropriate code entry, the actual or scheduled month and year of installation on the airplane;

(x) For DC-8 and B-707 airplanes operated in domestic U.S. air commerce which have been or will be retired from service in the United States without replacement between January 24, 1977, and January 1, 1985, the appropriate code prescribed under paragraph (c)(5) of this section followed by the actual or scheduled month and year of retirement of the airplane from service;

(xi) For DC-8 and B-707 airplanes operated in foreign air commerce in the United States, which have been or will be retired from service in the United States without replacement between April 14, 1980, and January 1, 1985, the appropriate code prescribed under paragraph (c)(5) of this section followed by the actual or scheduled month and year of retirement of the airplane from service;

(xii) For airplanes covered by an approved replacement plan under § 91.305(c) of this subpart, the appropriate code prescribed under paragraph (c)(5) of this section followed by the scheduled month and year for replacement of the airplane;

(xiii) For airplanes designated as "engaged in foreign commerce" in accordance with an approved method of apportionment under § 91.305(c) of this subpart, the appropriate code prescribed under paragraph (c)(5) of this section;

(xiv) For airplanes covered by an exemption issued to the operator granting relief from noise level requirements of this subpart, the appropriate code prescribed under paragraph (c)(5) of this section followed by the actual or scheduled month and year of expiration of the exemption and the appropriate code and applicable dates which indicate the compliance strategy planned or implemented for the airplane.

(xv) For all airplanes covered by this section, the number of spare shipsets of acoustical components need for continuous compliance and the number available on demand to the operator in support of those airplanes; and

(xvi) For airplanes for which none of the other codes prescribed under paragraph (c)(5) of this section describes either the technology applied, or to be applied to the airplane in accordance with the certification requirements under Parts 21 and 36 of this chapter, or the compliance strategy or methodology, following the code "OTH" enter the date of any certificate action and attach an addendum to the plan explaining the nature and extent of the certificated technology, strategy, or methodology employed, with reference to the type certificate documentation.

(5) TABLE OF ACOUSTICAL TECHNOLOGY/ STRATEGY CODES

Code	*Airplane Type/ Model*	*Certificated Technology*
A	B-707-120B B-707-320B/C B-720B	Quiet Nacelles + 1-Ring
B	B-727-100	Double Wall Fan Duct Treatment
C	B-727-200	Double Wall Fan Duct Treatment (Pre-January 1977 Installations and Amended Type Certificate)
D	B-727-200 B-737-100 B-737-200	Quiet Nacelles + Double Wall Fan Duct Treatment
E	B-747-100 (pre-December 1971) B-747-200 (pre-December 1971)	Fixed Lip Inlets + Sound Absorbing Material Treatment
F	DC-8	New Extended Inlet and Bullet with Treatment + Fan Duct Treatment Areas
G	DC-9	P-36 Sound Absorbing Material Treatment Kit
H	BAC-111-200	Silencer Kit (BAC Acoustic Report 522)
I	BAC-111-400	(To be identified later if certificated)
J	B-707 DC-8	Reengined with High Bypass Ratio Turbojet Engines + Quiet Nacelles (if certificated under Stage 3 noise level requirements)

REP—For airplanes covered by an approved replacement under § 91.305(c) of this subpart.

EFC—For airplanes designated as "engaged in foreign commerce" in accordance with an approved method of apportionment under § 91.307 of this subpart.

RET—For DC-8 and B-707 airplanes operated in domestic U.S. air commerce and retired from service in the United States without replacement between January 24, 1977, and January 1, 1985.

RFC—For DC-8 and B-707 airplanes operated by U.S. operators in foreign air commerce in the United States and retired from service in the United States without replacement between April 14, 1980, and January 1, 1985.

EXD—For airplanes exempted from showing compliance with the noise level requirements of this subpart.

OTH—For airplanes for which no other prescribed code describes either the certificated technology applied, or to be applied to the airplane, or the compliance strategy or methodology. (An addendum must explain the nature and extent of technology, strategy or methodology and reference the type certificate documentation.

§ 91.309 Civil supersonic airplanes that do not comply with Part 36.

(a) *Applicability.* This section applies to civil supersonic airplanes that have not been shown to comply with the Stage 2 noise limits of Part 36 in effect on October 13, 1977, using applicable tradeoff provisions, and that are operated in the United States after July 31, 1978.

(b) *Airport use.* Except in an emergency, the following apply to each person who operates a civil supersonic airplane to or from an airport in the United States:

(1) Regardless of whether a type design change approval is applied for under Part 21 of this chapter, no person may land or take off an airplane, covered by this section, for which the type design is changed, after July 31, 1978, in a manner constituting an "acoustical change" under § 21.93, unless the acoustical change requirements of Part 36 are complied with.

(2) No flight may be scheduled, or otherwise planned, for takeoff or landing after 10 p.m. and before 7 a.m. local time.

§ 91.311 Civil supersonic airplanes: noise limits.

Except for Concorde airplanes having flight time before January 1, 1980, no person may, after July 31, 1978, operate, in the United States, a civil supersonic airplane that does not comply with the Stage 2 noise limits of Part 36 in effect on October 13, 1977, using applicable trade-off provisions.

APPENDIX A

Category II Operations: Manual, Instruments, Equipment and Maintenance

1. Category II Manual.

(a) *Application for approval.* An applicant for approval of a Category II manual or an amendment to an approved Category II manual must submit the proposed manual or amendment to the General Aviation District Office having jurisdiction of the area in which the applicant is located. If the application requests an evaluation program, it must include the following—

(1) The location of the airplane and the place where the demonstrations are to be conducted; and

(2) The date the demonstrations are to commence (at least 10 days after filing the application.)

(b) *Contents.* Each Category II manual must contain—

(1) The registration number, make, and model of the airplane to which it applies;

(2) A maintenance program as specified in § 4 of this Appendix; and

(3) The procedures and instructions related to recognition of decision height, use of runway visual range information, approach monitoring, the decision region (the region between the middle marker and the decision height), the maximum permissible deviations of the basic ILS indicator within the decision region, a missed approach, use of airborne low approach equipment, minimum altitude for the use of the autopilot, instrument and equipment failure warning systems, instrument failure, and other procedures, instructions, and limitations that may be found necessary by the Administrator.

2. Required Instruments and Equipment.

The instruments and equipment listed in this section must be installed in each airplane operated in a Category II operation. This section does not require duplication of instruments and equipment required by § 91.33 or any other provisions of this chapter.

(a) *Group I.*

(1) Two localizer and glide slope receiving systems. Each system must provide a basic ILS display and each side of the instrument panel must have a basic ILS display. However, a single localizer antenna and a single glide slope antenna may be used.

(2) A communications system that does not affect the operation of at least one of the ILS systems.

(3) A marker beacon receiver that provides distinctive aural and visual indications of the outer and the middle marker.

(4) Two gyroscopic pitch and bank indicating systems.

(5) Two gyroscopic direction indicating systems.

(6) Two airspeed indicators.

(7) Two sensitive altimeters adjustable for barometric pressure, each having a placarded correction for altimeter scale error and for the wheel height of the airplane. [After June 26, 1979, two sensitive altimeters adjustable for barometric pressure, having markings at 20-foot intervals and each having a placarded correction for altimeter scale error and for the wheel height of the airplane.]

(8) Two vertical speed indicators.

(9) A flight control guidance system that consists of either an automatic approach coupler or a flight director system. A flight director system must display computed information as steering command in relation to an ILS localizer and, on the same instru-

ment, either computed information as pitch command in relation to an ILS glide slope or basic ILS glide slope information. An automatic approach coupler must provide, at least automatic steering in relation to an ILS localizer. The flight control guidance system may be operated from one of the receiving systems required by subparagraph (1) of this paragraph.

(10) For Category II operations with decision heights below 150 feet, either a marker beacon receiver providing aural and visual indications of the inner marker or a radio altimeter.

(b) *Group II.*

(1) Warning systems for immediate detection by the pilot of system faults in items (1), (4), (5), and (9) of Group I and, if installed, for use in Category II operations, the radio altimeter and auto throttle system.

(2) Dual controls.

(3) An externally vented static pressure system with an alternate static pressure source.

(4) A windshield wiper or equivalent means of providing adequate cockpit visibility for a safe visual transition by either pilot to touch down and roll out.

(5) A heat source for each airspeed system pitot tube installed or an equivalent means of preventing malfunctioning due to icing of the pitot system.

3. Instruments and Equipment Approval.

(a) *General.* The instruments and equipment required by § 2 of this Appendix must be approved as provided in this section before being used in Category II operations. Before presenting an airplane for approval of the instruments and equipment, it must be shown that, since the beginning of the 12th calendar month before the date of submission—

(1) The ILS localizer and glide slope equipment were bench checked according to the manufacturer's instructions and found to meet those standards specified in RTCA Paper 23-63/DO-117, dated March 14, 1963, "Standard Adjustment Criteria for Airborne Localizer and Glide Slope Receivers", which may be obtained from the RTCA Secretariat, 2000 K St., N.W., Washington, D.C. 20006, at cost of 50 cents per copy, payment in cash or by check or money order payable to the RADIO TECHNICAL COMMISSION FOR AERONAUTICS;

(2) The altimeters and the static pressure systems were tested and inspected in accordance with Appendix E to Part 43 of this chapter; and

(3) All other instruments and items of equipment specified in § 2(a) of this Appendix that are listed in the proposed maintenance program were bench checked and found to meet the manufacturer's specifications.

(b) *Flight Control Guidance System.* All components of the flight control guidance system must be approved as installed by the evaluation program specified in paragraph (e) of this section if they have not been approved for Category II operations under applicable type or supplemental type certification procedures. In addition, subsequent changes to make, model or design of these components must be approved under this paragraph. Related systems or devices such as the auto throttle and computed missed approach guidance system must be approved in the same manner if they are to be used for Category II operations.

(c) *Radio Altimeter.* A radio altimeter must meet the performance criteria of this paragraph for original approval and after each subsequent alteration.

(1) It must display to the flight crew clearly and positively the wheel height of the main landing gear above the terrain.

(2) It must display wheel height above the terrain to an accuracy of plus or minus five feet or five percent, whichever is greater, under the following conditions:

(i) Pitch angles of zero to plus or minus five degrees about the mean approach attitude.

(ii) Roll angles of zero to 20 degrees in either direction.

(iii) Forward velocities from minimum approach speed up to 200 knots.

(iv) Sink rates from zero to 15 feet per second at altitudes from 100 to 200 feet.

(3) Over level ground, it must track the actual altitude of the airplane without significant lag or oscillation.

(4) With the airplane at an altitude of 200 feet or less, any abrupt change in terrain representing no more than 10 percent of the airplane's altitude must not cause the altimeter to unlock, and indicator response to such changes must not exceed 0.1 seconds, and in addition, if the system unlocks for greater changes, it must reacquire the signal in less than 1 second.

(5) Systems that contain a push-to-test feature must test the entire system (with or without an antenna) at a simulated altitude of less than 500 feet.

(6) The system must provide to the flight crew a positive failure warning display any time there is a loss of power or an absence of ground return signals within the designed range of operating altitudes.

(d) *Other Instruments and Equipment.* All other instruments and items of equipment required by § 2 of this Appendix must be capable of performing as necessary for Category II operations. Approval is also required after each subsequent alteration to these instruments and items of equipment.

(e) *Evaluation program.*

(1) *Application.* Approval by evaluation is requested as a part of the application for approval of the Category II manual.

(2) *Demonstrations.* Unless otherwise authorized by the Administrator, the evaluation program for each airplane requires the demonstrations specified in this subparagraph. At least 50 ILS approaches must be flown with at least five approaches on each of three different ILS facilities and no more than one half of the total approaches on any one ILS facility. All approaches shall be flown under simulated instrument conditions to a 100 foot decision height and ninety per cent of the total approaches made must be successful. A successful approach is one in which—

(i) At the 100 foot decision height, the indicated airspeed and heading are satisfactory for a normal flare and landing (speed must be plus or minus five knots of programmed airspeed but may not be less than computed threshold speed, if auto throttles are used);

(ii) The airplane, at the 100 foot decision height, is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the runway extended;

(iii) Deviation from glide slope after leaving the outer marker does not exceed 50 percent of full scale deflection as displayed on the ILS indicator;

(iv) No unusual roughness or excessive attitude changes occur after leaving the middle marker; and

(v) In the case of an airplane equipped with an approach coupler, the airplane is sufficiently in trim when the approach coupler is disconnected at the decision height to allow for the continuation of a normal approach and landing.

(3) *Records.* During the evaluation program the following information must be maintained by the applicant for the airplane with respect to each approach and made available to the Administrator upon request:

(i) Each deficiency in airborne instruments and equipment that prevented the initiation of an approach.

(ii) The reasons for discontinuing an approach including the altitude above the runway at which it was discontinued.

(iii) Speed control at the 100 foot decision height if auto throttles are used.

(iv) Trim condition of the airplane upon disconnecting the auto coupler with respect to continuation to flare and landing.

(v) Position of the airplane at the middle marker and at the decision height indicated both on a diagram of the basic ILS display and a diagram of the runway extended to the middle marker. Estimated touch down point must be indicated on the runway diagram.

(vi) Compatibility of flight director with the auto coupler, if applicable.

(vii) Quality of overall system performance.

(4) *Evaluation.* A final evaluation of the flight control guidance system is made upon successful completion of the demonstrations. If no hazardous tendencies have been displayed or are otherwise known to exist, the system is approved as installed.

4. Maintenance program.

(a) Each maintenance program must contain the following:

(1) A list of each instrument and item of equipment specified in § 2 of this Appendix that is installed in the airplane and approved for Category II operations, including the make and model of those specified in § 2(a).

(2) A schedule that provides for the performance of inspections under subparagraph (5) of this paragraph within 3 calendar months after the date of the previous inspection. The inspection must be performed by a person authorized by Part 43 of this chapter, except that each alternate inspection may be replaced by a functional flight check. This functional flight check must be performed by a pilot holding a Category II pilot authorization for the type airplane checked.

(3) A schedule that provides for the performance of bench checks for each listed instrument and item of equipment that is specified in § 2(a) within 12 calendar months after the date of the previous bench check.

(4) A schedule that provides for the performance of a test and inspection of each static pressure system in accordance with Appendix E to Part 43 of this chapter within 12 calendar months after the date of the previous test and inspection.

(5) The procedures for the performance of the periodic inspections and functional flight checks to determine the ability of each listed instrument and item of equipment specified in § 2(a) of this Appendix to perform as approved for Category II operations including a procedure for recording functional flight checks.

(6) A procedure for assuring that the pilot is informed of all defects in listed instruments and items of equipment.

(7) A procedure for assuring that the condition of each listed instrument and item of equipment upon which maintenance is performed is at least equal to its Category II approval condition before it is returned to service for Category II operations.

(8) A procedure for an entry in the maintenance records required by § 43.9 of this chapter that shows the date, airport, and reasons for each discontinued Category II operation because of a malfunction of a listed instrument or item of equipment.

(b) *Bench Check.* A bench check required by this section must comply with this paragraph.

(1) It must be performed by a certificated repair station holding one of the following ratings as appropriate to the equipment checked:

(i) An instrument rating.

(ii) A radio rating.

(iii) A rating issued under Subpart D of Part 145.

(2) It must consist of removal of an instrument or item of equipment and performance of the following:

(i) A visual inspection for cleanliness, impending failure, and the need for lubrication, repair, or replacement of parts;

(ii) Correction of items found by that visual inspection; and

(iii) Calibration to at least the manufacturer's specifications unless otherwise specified in the approved Category II manual for the airplane in which the instrument or item of equipment is installed.

(c) *Extensions.* After the completion of one maintenance cycle of 12 calendar months a request to extend the period for checks, tests, and inspections is approved if it is shown that the performance of particular equipment justifies the requested extension.

APPENDIX B

Authorizations to Exceed Mach 1 (§ 91.55)

SECTION 1. *Application.*

(a) An applicant for an authorization to exceed Mach 1 must apply in a form and manner prescribed by the Administrator and must comply with this Appendix.

(b) In addition, each application for an authorization to exceed Mach 1 covered by section 2(a) of this Appendix must contain all information, requested by the Administrator, that he deems necessary to assist him in determining whether the designation of a particular test area, or issuance of a particular authorization, is a "major Federal action significantly affecting the quality of the human environment" within the meaning of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), and to assist him in complying with that Act, and with related Executive orders, guidelines, and orders, prior to such action.

(c) In addition, each application for an authorization to exceed Mach 1 covered by section 2(a) of this Appendix must contain—

(1) Information showing that operation at a speed greater than Mach 1 is necessary to accomplish one or more of the purposes specified in section 2(a) of this Appendix, including a showing that the purpose of the test cannot be safely or properly accomplished by overocean testing;

(2) A description of the test area proposed by the applicant, including an environmental analysis of that area meeting the requirements of paragraph (b) of this section; and

(3) Conditions and limitations that will ensure that no measurable sonic boom overpressure will reach the surface outside of the designated test area.

(d) An application is denied if the Administrator finds that such action is necessary to protect or enhance the environment.

SEC. 2. *Issuance.*

(a) For a flight in a designated test area, an authorization to exceed Mach 1 may be issued when the Administrator has taken the environmental protective actions specified in section 1(b) of this Appendix, and the applicant shows one or more of the following:

(1) The flight is necessary to show compliance with airworthiness requirements.

(2) The flight is necessary to determine the sonic boom characteristics of the airplane, or is necessary to establish means of reducing or eliminating the effects of sonic boom.

(3) The flight is necessary to demonstrate the conditions and limitations under which speeds greater than a true flight Mach number of 1 will not cause a measurable sonic boom overpressure to reach the surface.

(b) For a flight outside of a designated test area, an authorization to exceed Mach 1 may be issued if the applicant shows conservatively under paragraph (a)(3) of this section that—

(1) The flight will not cause a measurable sonic boom overpressure to reach the surface when the aircraft is operated under conditions and limitations demonstrated under paragraph (a)(3) of this section; and

(2) Those conditions and limitations represent all foreseeable operating conditions.

SEC. 3. *Duration.*

(a) An authorization to exceed Mach 1 is effective until it expires or is surrendered, or until it is suspended or terminated by the Administrator. Such an authorization may be amended or suspended by the Administrator at any time if he finds that such action is necessary to protect the environment. Within 30 days of notification of amendment, the holder of the authorization must request reconsideration or the amendment becomes final. Within 30 days of notification of suspension, the holder of the authorization must request reconsideration or the authorization is automatically terminated. If reconsideration is requested within the 30-day period, the amendment or suspension continues until the holder shows why, in his opinion, the authorization should not be amended or terminated. Upon such showing, the Administrator may terminate or amend the authorization if he finds that such action is necessary to protect the environment, or he may reinstate the authorization without amendment if he finds that termination or amendment is not necessary to protect the environment.

(b) Findings and actions by the Administrator under this section do not affect any certificate issued under Title VI of the Federal Aviation Act of 1958.

APPENDIX C

Operations in the North Atlantic (NAT) Minimum Navigation Performance Specifications (MNPS) Airspace

[Section 1. NAT MNPS airspace is that volume of airspace between flight level 275 and flight level 400 extending between latitude 27 degrees north and the North Pole, bounded in the east by the eastern boundaries of control areas Santa Maria Oceanic, Shanwick Oceanic and Reykjavik, Oceanic and in the west by the western boundary of Reykjavik Oceanic Control Area, the western boundary of Gander Oceanic Control Area, and the western boundary of New York Oceanic Control Area, excluding the areas west of 60 degrees west and south of 38 degrees 30 minutes north.]

Section 2. The navigation performance capability required for aircraft to be operated in the airspace defined in § 1 of this Appendix is as follows:

(a) The standard deviation of lateral track errors shall be less than 6.3 NM (11.7 Km). Standard deviation is a statistical measure of data about a mean value. The mean is zero nautical miles. The overall form of data is such that the plus and minus one standard deviation about the mean encompasses approximately 68 percent of the data and plus or minus two deviations encompasses approximately 95 percent.

(b) The proportion of the total flight time spent by aircraft 30 NM (55.6 Km) or more off the cleared track shall be less than 5.3×10^{-4} (less than one hour in 1,887 flight hours.)

(c) The proportion of the total flight time spent by aircraft between 50 NM and 70 NM (92.6 Km and 129.6 Km) off the cleared track shall be less than 13×10^{-5} (less than one hour in 7,693 flight hours).

Section 3. Air traffic control (ATC) may authorize an aircraft operator to deviate from the requirements of § 91.20 for a specific flight if, at the time of flight plan filing for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden upon, the operations of other aircraft which meet the requirements of § 91.20.

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Special Federal Aviation Regulation 27
Compliance With Aircraft Emission Standards Issued by Environmental Protection Agency

Adopted: December 26, 1973 **Effective: February 1, 1974**

(Published in 38 F.R. 35427, December 28, 1973)

The purpose of this Special Federal Aviation Regulation (SFAR) is to ensure compliance with aircraft and emission standards issued by the Environmental Protection Agency (EPA). Initially, this SFAR covers fuel venting and smoke number requirements issued by that agency in 40 CFR Part 87 and that originally applied beginning on January 1, 1974 but that have recently been extended to February 1, 1974 by EPA. The basis for this SFAR is § 232 of the Clean Air Act, as amended.

This action is based on a Notice of Proposed Rule Making (Notice No. 73-29) issued on October 31, 1973 and published in the Federal Register (38 F.R. 30277) on November 2, 1973. Interested persons have been afforded an opportunity to participate in the making of this regulation and due consideration has been given to all relevant matter presented.

I. *Background prior to Notice 73-29.* As stated in Notice 73-29, the FAA has been concerned with the regulatory aspects of aircraft emissions since issuance of an Advance Notice of Proposed Rule Making, entitled "Aircraft Engine Emissions" (Notice 70-15) which was published in the Federal Register (35 F.R. 5264) on March 28, 1970. Public comment was received on the development of potential regulatory policies with respect to emissions from civil aircraft. On December 31, 1970, the Clean Air Act was amended (P.L. 91-604), giving EPA responsibility for issuing emission standards applicable to emissions of air pollutants from aircraft or aircraft engines which, in the judgment of EPA, cause or contribute to or are likely to cause or contribute to air pollution which endangers the public health or welfare (§ 231 of the Clean Air Act, as amended). The Clean Air Amendments of 1970 also added § 232 to the Clean Air Act. Section 232 provides that The Secretary of Transportation, after consultation with EPA, "shall prescribe regulations to insure compliance with all standards prescribed under § 231 by the Administrator (of EPA). The regulations of The Secretary of Transportation shall include provisions making such standards applicable in the issuance, amendment, modification, suspension, or revocation of any certificate authorized by the Federal Aviation Act or the Department of Transportation Act." On May 12, 1971 (36 F.R. 8733), the functions vested in The Secretary of Transportation by Part B of Title II of the Clean Air Act, as amended (including § 232) were delegated by The Secretary to the Administrator of the FAA.

Pursuant to § 231 of the Clean Air Act, EPA on December 12, 1972 issued a Notice of Proposed Rule Making containing proposed Part 87 (37 F.R. 26488). The air transportation industry was afforded opportunity to comment on the substance and timing of the standards in EPA Part 87 that were proposed in that Notice. In addition, as prescribed in § 231 of the Act, EPA held hearings, concerning the proposed aircraft emission standards, in Boston, Massachusetts, on January 29, 1973, and in Los Angeles, California, on February 6, 1973. As EPA pointed out in the preamble to EPA Part 87, testimony was presented at the hearings by twenty-two representatives of domestic and foreign manufacturers and operators of aircraft and aircraft engines, and by other interested parties. Other comments in response to Proposed Part 87 were submitted to EPA, following the hearings, from thirty-one organizations.

In order to ensure that all persons who attended EPA's hearings, or who were otherwise interested, would know the probable effect of EPA's proposed Part 87 on the regulatory actions of the FAA, the FAA provided, at the EPA hearings in January and February, 1973, a comprehensive "Tentative FAA Regulatory Draft re: Environmental Protection Agency Proposed Aircraft Emission Standards." Public availability of this document was announced by FAA in the Federal Register on January 19, 1973 (38 F.R. 1949). Advance notice that the FAA would, if possible, make this document available had also been published in the Federal Register on December 12, 1972, as part of FAA's Notice of Participation in the EPA hearings (37 F.R. 26458). As stated in the Notice of Availability, the draft distributed at the hearings contained "detailed regulatory language that represents the kinds of FAA rule making that, under § 232 of the Clean Air Act, as amended, would have to follow the final issuance of EPA Part 87 if that part is adopted as proposed" and was made available so that "public commentators will have full knowledge of both the EPA and the probable FAA proposals prior to the hearings." The draft itself also stated that "careful review of this draft and of its relation to EPA's proposed Part 87 * * * is essential to a fully informed and constructive response, by the regulated aviation public, at the forthcoming hearings."

Following this joint effort between EPA and FAA, EPA on July 6, 1973, issued Part 87 (40 CFR Part 87) entitled "Control of Air Pollution from Aircraft and Aircraft Engines" (published in the Federal Register, 38 F.R. 19088, on July 17, 1973). That part includes fuel venting requirements that apply to all turbofan and turbojet engines with 8,000 pounds thrust or more, and smoke number requirements for JT8D engines, which originally applied beginning on January 1, 1974. On December 19, 1973, EPA issued an amendment to Part 87 that extended the effective date of the initial fuel venting and smoke requirements to February 1, 1974 and provided a regulatory basis for the issuance of temporary exemptions on or after that date [see "Temporary Exemptions From Aircraft Emission Standards (Fuel Venting and Smoke)," which, as of this date, is expected to be published shortly in the Federal Register. That amendment provides that exemptions issued by EPA will be published in the Federal Register. This SFAR is issued to ensure compliance with the EPA standards that become effective on February 1, 1974 consistent with the terms of any exemptions issued by EPA.

II. *Notice 73-29.* As stated above, Notice 73-29, entitled "Initial Compliance with Aircraft Emission Standards Issued by EPA (Smoke and Fuel Venting Emissions)" was issued by FAA on October 31, 1973. That Notice proposed regulations that would prohibit as of January 1, 1974 (the original compliance date in EPA Part 87) the certification or airworthiness approval, return to service after maintenance, and operation of airplanes (and aircraft engines) that do not comply with the fuel venting and smoke number requirements of EPA Part 87 that apply beginning on January 1, 1974. In order to reflect the statutory division of responsibility between EPA (under § 231 of the Clean Air Act, as amended) and FAA (under § 232 of that Act), the Notice did not solicit comments concerning the substance or effective date of the already final requirements of EPA Part 87, but only invited comments concerning the aspects of the proposed rules that involve FAA's use of its authority to ensure compliance with EPA Part 87. Comments concerning matters within EPA's regulatory discretion and authority were referred to that Agency. Notice 73-29 also contained procedural provisions needed to reflect the respective regulatory roles of EPA and FAA, and to reflect the preemptive effect of § 233 of the Clean Air Act, as amended (42 U.S.C. 1857 f-11) which provides that no State or political subdivision thereof may adopt or attempt to enforce any standard respecting emissions of any air pollutant from any aircraft or engine unless such standard is "identical to a standard applicable to such aircraft under this part" (Part B of Title II of the Act).

III. *Comments in response to Notice 73-29.* Numerous information copies of comments were reviewed addressing either the substance or the timing of the provisions of EPA Part 87 that were incorporated by reference in Notice 73-29. As stated above, the Notice referred such comments to EPA for consideration. As also discussed above, EPA, in response to comments concerning the provisions of EPA Part 87 that originally were to become effective on January 1, 1974, has, in addition to changing the effective date to February 1, 1974, amended Part 87 to allow for the issuance of exemptions, by EPA, to individual applicants who demonstrate that such exemptions are justified in the public interest. In this connection, § 3(b) of this SFAR provides that, if EPA takes action to issue an exemption (or other relaxation), "the new, relaxed EPA procedure or requirement, upon its effective date, is incorporated by reference in this SFAR and supersedes the provisions of this SFAR that are based on the provisions of EPA Part 87 that were relaxed by such action." This will ensure that this SFAR is implemented in a manner that is consistent with any exemptions that may be issued by EPA.

In addition to comments received concerning EPA Part 87, the following comments were received with respect to the aspects of Notice 73-29 that involve FAA's responsibility to ensure compliance with EPA's requirements:

1. It was requested that FAA postpone its requirement with respect to return to service after maintenance, rebuilding, or alteration. It was argued that much refinement of this proposed regulation is needed in order to be able to prescribe, with precision, the actions that maintenance personnel must take in order to ensure that the requirements of EPA Part 87 are not violated by the performance of maintenance, rebuilding, or alteration of aircraft or aircraft engines. The overall problem of continuing compliance is being studied by FAA, in close consultation with the EPA, to determine the most effective means of providing regulatory tools for ensuring that aircraft maintenance, rebuilding, and alteration personnel understand and, in a normal maintenance environment, can deal with test procedures and technologies associated with continuing compliance with clean air requirements. Pending development of further regulations concerning emission inspection of in-service aircraft, the provisions of proposed § 23 requiring a demonstration of compliance with EPA Part 87 prior to approval for return to service are accordingly deleted from this SFAR. As further discussed below, compliance with applicable maintenance requirements will be accepted by the FAA as demonstrating compliance with the smoke emissions requirements of EPA Part 87 for in-use engines until testing requirements for those engines are prescribed by FAA.

2. It was requested that the applicability of the SFAR to foreign aircraft be clarified. Specifically, concern was expressed with respect to the reference, in § 1(b) of the proposed SFAR, to "foreign airworthiness certificates that are equivalent to U.S. standard airworthiness certificates." The quoted language originates in the definition of "aircraft" in § 87.1 of EPA Part 87 (i.e. "'aircraft' means any airplane for which a U.S. standard airworthiness certificate or equivalent foreign airworthiness certificate is issued"). The FAA believes that a straight forward application of the term "equivalent" simply requires that the SFAR be applied to foreign airplanes that would be covered if they were registered in the United States. Any other policy would involve a high probability of inadvertent discriminatory application of the SFAR (either against U.S. registered airplanes or against foreign registered airplanes). FAA thus believes that the EPA definition of 'aircraft' is clear, and is simply intended to ensure that U.S. registered and foreign registered aircraft are treated equally. Any questions concerning the applicability of the SFAR to a foreign aircraft will be resolved by determining whether the aircraft, if it were certificated in the U.S., would be required by the Federal Aviation Regulations to have a U.S. standard airworthiness certificate in order to conduct the kinds of operations that are to be conducted by the foreign registered aircraft in the U.S. This clarifying language has been added to § 1(b) of the SFAR.

3. Concern was expressed that application of the terms of EPA Part 87 to certain airplanes might reduce safety. The FAA will ensure, and this SFAR requires (see § 11), that no type design or hardware modifications needed to comply with EPA Part 87 will be approved unless full compliance with applicable airworthiness standards is shown. Further, if FAA determines that compliance with any provision of EPA Part 87 may compromise safety, EPA will be notified to revise Part 87 under § 87.6 of that Part.

4. A question was raised as to whether the fuel venting emissions provisions of the SFAR could be complied with through means of compliance applied to the airframe, or whether all means of compliance must be restricted to the engine. As stated in the preamble to Notice 73-29, EPA has advised FAA, with respect to the intent of § 87.11 (and the definition of "fuel venting emissions" in § 87.1(26)), that § 87.11 was intended to control only the intentional discharge of fuel from fuel nozzle manifolds after the engines are shut down. Any means shown to prevent such discharge will be accepted, whether such means is applied to the airframe or to the engine(s). As also stated in the Notice, such means of compliance include (1) incorporation of an FAA approved system that recirculates the drained fuel back into the fuel system, (2) capping or otherwise securing the pressurization and drain (dump) valve, or (3) manually draining the fuel from a holding tank into an appropriate container. Comments requested that these means of compliance be specified in the SFAR itself rather than the preamble. This comment has merit and has been adopted (see § 14(a)). It should be noted that the list of acceptable means of compliance is not exhaustive and that any other means demonstrated to prevent the intentional discharge of fuel from

fuel nozzle manifolds, after engine shutdown, will be accepted as complying with the provisions of § 87.11 of EPA Part 87 that are incorporated in this SFAR.

5. One comment expressed concern that EPA's definition of "fuel venting emissions" might be interpreted as prohibiting more than the international discharge of fuel from fuel nozzles after engine shutdown. Responsibility for interpreting the terms of EPA Part 87 rests with EPA. EPA's interpretation of the intent of § 87.11 contained in a letter from EPA to FAA, dated October 31, 1973 (which has been placed in the rules docket) interprets § 87.11 as applying only to the intentional discharge of fuel, from fuel nozzles, after engine shutdown. Section 3(d) of the SFAR provides that all interpretations of EPA Part 87 that are rendered by EPA also apply to the SFAR. In addition, the intent of this EPA interpretation is restated in § 14(a) of the SFAR.

6. Concern was expressed that installation of the Pratt and Whitney smokeless combustor on Class T-4 (JT8D) engines might not be in compliance with the applicable smoke number provisions of EPA Part 87. The issues are (1) whether or not the smoke measurement systems used to test JT8D engines equipped with the Pratt and Whitney smokeless combustor are approved by EPA under § 87.80 which provides that, in addition to the applicable smoke measurement testing procedures specified in Part 87, "other smoke measurement systems may be used if shown to yield equivalent results and if approved in advance by the Administrator" (or EPA), and (2) whether a smoke number of 30 or less was achieved under the approved equivalent smoke measurement system. EPA advised that both conditions have been met. Thus, by letter dated December 7, 1973, EPA has advised the FAA that, having reviewed tests conducted by Pratt and Whitney in 1971 and 1973 on JT8D engines incorporating reduced smoke combustors, "EPA has determined, under Subpart H, § 87.80 of EPA Part 87, that the smoke measurement systems used in these tests yield results equivalent to the results which would have been obtained under full compliance with Subpart H, § 87.80 of Part 87. The smoke numbers obtained in these tests fell below 30 and are considered to comply with the provisions of Subpart C of Part 87, which apply to new engines of Class T-4 beginning January 1, 1974." With respect to in-use engines (i.e. the many JT8D engines in service that are already equipped with the Pratt and Whitney reduced smoke combustor, and new engines with that combustor that will be introduced into service and become "in-use" engines), EPA stated, in the same letter, that EPA realizes that "Pratt and Whitney has encountered difficulty in establishing the design of a multipoint smoke sampling probe fully matching the specifications laid out in Part 87, and suitable for routine smoke testing on in-use engines. In view of this (EPA) will consider compliance with Subpart D, § 87.31(a) and (e), to have been initially demonstrated by maintenance records or other evidence showing that the reduced smoke combustors . . . have been installed. Following the development of an acceptable multipoint smoke sampling rake suitable for routine testing with (Class T-4 engines), compliance will be expected to be demonstrated by testing random samples of engines in airline service at normal overhaul periods." In view of these technical determinations by EPA, the FAA will ensure compliance with February 1, 1974, smoke number requirements of EPA Part 87 applicable to JT8D engines as follows: For "new" engines (which are defined in § 87.1(6) as engines that have never been in service), operators of airplanes equipped with those engines are required to ensure that such engines are equipped with the Pratt and Whitney reduced smoke combustor before they are placed into service (and thus become "in-use" engines). New engines equipped with that combustor will be regarded as complying with the applicable smoke number requirements of § 87.21 of EPA Part 87. With respect to "in-use" engines (which are defined in § 87.1(8) as engines that are in service), each such engine having a Pratt and Whitney reduced smoke combustor, and for which applicable maintenance requirements and complied with, will be accepted as being in compliance with the smoke number requirements of § 87.31(a) and (e) until a multipoint smoke sampling rake suitable for routine testing is readily available and the FAA has issued regulations for testing random samples of engines at normal overhaul periods.

In other respect, this Special Federal Aviation Regulation is issued for the reasons specified in Notice 73-29.

The Pratt and Whitney Engineering Change and Service Bulletins describing complying reduced smoke burners are incorporated by reference in § 14(b) of this SFAR.

These documents (P&W Engineering Change No. 197707 and Service Bulletins 2417 and 2531) are available for examination by interested persons in the FAA Rules Docket AGC-24, Room 915, 800 Independence Avenue, S.W., Washington, D.C. 20591. In addition, copies may be obtained in person by writing the Director, Office of Environmental Quality, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591. This will ensure that the incorporated materials are readily available to interested persons. This incorporation by reference is intended and completed by inclusion of these documents in this SFAR, and was approved by the Director of the Federal Register pursuant to 1 CFR Part 51, on December 19, 1973. It should be restated, however, that the incorporated documents merely describe acceptable means of compliance with the applicable smoke emissions requirements of this SFAR. Other means of compliance may be accepted by the FAA.

Authority: (Sections 232 and 233 of the Clean Air Act, as amended December 31, 1970, Pub. L. 91–604, sec. 11(a)(1), 84 Stat. 1704 (42 U.S.C. 1857 f–10, f–11), as delegated 36 FR 8733; 40 CFR Part 87 (38 FR 19088); sec. 307(c), 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c), 1354(a), 1421, and 1423); sec. 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

In consideration of the foregoing, the following new Special Federal Aviation Regulation No. 27 is added, effective February 7, 1974, to Title 14 of the Code of Federal Regulations.

Pursuant to 1 C.F.R. Part 51, the Director of the Federal Register approved on December 19, 1973, the incorporated by reference, into SFAR 27, of Pratt and Whitney Engineering Change 19707 and Service Bulletins 2417 and 2531.

Special Federal Aviation Regulation 27–1

Compliance With Environmental Protection Agency Fuel Venting Emission Standards

Adopted: December 23, 1974 Effective: January 1, 1975

(Published in 39 F.R. 45008, December 30, 1974)

The purpose of this amendment to Special Federal Aviation Regulation (SFAR) No. 27 is to require compliance with Environmental Protection Agency (EPA) fuel venting emission standards that are effective beginning January 1, 1975. These EPA standards, specified in 40 CFR Part 87, apply to new and in-use aircraft turbofan or turbojet engines of less than 8,000 pounds thrust, to new and in-use aircraft turbo propeller engines, and to airplanes powered by those engines. The primary basis for this amendment is § 232 of the Clear Air Act, as amended. Editorial improvements are also made.

Notice No. 74–23 was published in the Federal Register on June 27, 1974 (39 F.R. 23271), stating that the Federal Aviation Administration was considering amending SFAR 27 to require compliance with certain EPA fuel venting emission standards made effective by that Agency on January 1, 1975. Interested persons were afforded an opportunity to participate in the proposed rule making. Due consideration was given to all relevant matter persented.

Five comments were received in response to the notice with two commentators objecting. One commentator stated that the proposed regulation would have no marked effect on the environment and was merely "regulation for regulation's sake." According to the commentator, the great majority of aircraft affected by the proposal are already in compliance with the proposed standards. In addition, the commentator objected to one of the means of complying with the regulation, that is manually draining the fuel from a holding tank into a container. The commentator stated that this means of compliance did not control how the drained fuel is disposed of.

With respect to the environmental benefits of the substantive standards of EPA Part 87 that are added to SFAR 27 by this amendment, this factor was considered by

EPA in its promulgation of Part 87. Regarding the ground handling of fuel after it is drained into a container, this issue involves airport fuel shortage and ground fuel management practices that may justify future study. The FAA invites comments concerning the contribution of specific ground fuel handling practices to air quality deterioration, including suggestions concerning means of ensuring that drained fuels are not later evaporated into the atmosphere, thus defeating the intent of the fuel venting emissions regulations.

One commentator addressed the applicability of this amendment to foreign registered aircraft operated in the United States. This commentator stated that "unilateral regulations such as this proposed would be contrary to certain obligations assumed by the United States as a party to the Chicago Convention and to a number of bilateral air transport agreements." The commentator referred to § 1 of the SFAR which, pursuant to § 87.3 of EPA Part 87, provides that the SFAR "does not apply where inconsistent with an obligation assumed by the United States to a foreign country in a treaty, convention, or agreement." The commentator suggested that standards, such as those in this amendment, should be developed internationally through the International Civil Aviation Organization. The FAA agrees that it is most desirable that the introduction of standards affecting international civil aviation be accomplished in an orderly fashion through the development of international standards. However, it is the position of the U.S. that no international treaties, conventions, or agreements currently prevent the FAA from exercising its duties under the Clean Air Act Amendments of 1970 and EPA Part 87. Therefore, SFAR 27, including this and subsequent amendments, must be applied to foreign airplanes as prescribed in § 1 of the SFAR.

In response to the fuel venting emissions provisions of EPA Part 87 that become effective on January 1, 1975 (namely Subpart B of EPA Part 87), this amendment adds definitions of "Class T1," and "Class P2" engines that are identical to those in § 87.1 of EPA Part 87, and adds references to those engine classes, and to the compliance date (January 1, 1975) in the appropriate sections of the SFAR.

Finally, editorial changes are made to the regulation. One editorial change restructures the paragraphs containing the references to the incorporated provisions of EPA Part 87 in order to standardize the form of those references where possible.

Another editorial change eliminates possible confusion concerning the effect of § 14(a) on the fuel venting emissions requirements of the SFAR. Section 14(a) states that compliance with the applicable fuel venting provisions "may be shown by any means of compliance, applied to the airframe or engine, that prevents . . ." However, the subsequent sections of the SFAR could be individually read as requiring that fuel venting emissions compliance must be shown for the engine (and may not be shown for the airframe alone). This is not intended. To ensurse that there is no question that the required means of showing compliance with the applicable fuel venting emissions requirements may be applied to the airframe or engine, the words "airframe or engine" are added to the fuel venting emissions requirements. Consistent with this intent, the requirement in § 19 of the SFAR that fuel venting emissions requirements be met as a condition to the issuance of an airworthiness approval tag (FAA Form 8130-3) is deleted for two reasons: First, it is meaningless as a general requirement since § 14(a) provides that fuel venting emissions requirements need not be met by engines if airframe modifications shown compliance. Second, it is redundant since, under § 25 of the SFAR, if the airframe does not comply with fuel venting emissions requirements, and the engine also does not comply, the airplane may not be operated. There is, thus, no need to apply the fuel venting emissions requirement at the engine airworthiness approval tag stage. Similarly, since, as stated above, the effect of § 14(a) is that an engine need not comply with any of the fuel venting emissions requirements of the SFAR if the airframe complies, and since airplane type certification approves the complete airplane (including its engines), the lead-in paragraphs of §§ 15 and 17 (concerning the issuance of type certificates, amended type certificates and supplemental type certificates) have been revised to refer only to certification of the airplane. No substantive change in practice results from these changes to §§ 15, 17 and 19 since they merely bring those sections into closer conformity with the intent of § 14(a), which already applies throughout the SFAR. Further notice and public procedure on these changes is, therefore, unnecessary.

As stated above, the requirements of 10 CFR Part 87 that are incorporated in this amendment become effective beginning on January 1, 1975. Section 232 of the Clean Air Act, as amended (42 U.S.C. 1857 f–10) requires the Secretary of Transportation to prescribe regulations to insure compliance with all standards prescribed under § 231 of that Act (42 U.S.C. 1857 f–9), which include the newly incorporated provisions of Part 87. Accordingly, this amendment must be effective no later than January 1, 1975. Good cause, therefore, exists for making this amendment effective less than 30 days after publication in the Federal Register.

Authority: [Section 232, Clean Air Act, as amended December 31, 1970, P.L. 91–604 (42 U.S.C. 1857 f–10), as delegated (36 F.R. 8733); 40 CFR 87 (39 F.R. 19088); sections 307(c), 313(a), 601, and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1348(c), 1354(a), 1421, and 1423; section 6(c), Department of Transportation Act (49 U.S.C. 1655(c))].

Special Federal Aviation Regulation 27–2

Compliance With Environmental Protection Agency Exhaust Emissions (Smoke) Standards

Adopted: November 23, 1975 Effective: January 1, 1976

(Published in 40 F.R. 55311, November 28, 1975)

The purpose of this amendment to Special Federal Aviation Regulation (SFAR) 27 is to require compliance with Environmental Protection Agency (EPA) standards for exhaust emissions of smoke that are effective beginning January 1, 1976. These EPA standards, specified in 40 CFR Part 87, apply to new and in-use aircraft turbofan or turbojet engines that are designed for subsonic airplanes and that have a rated power of 29,000 pounds thrust or greater. Foreign, as well as U.S. registered, civil airplanes are affected. The primary basis for this amendment is § 232 of the Clean Air Act, as amended.

Notice No. 75–34 was published in the *Federal Register* on September 16, 1975, (40 F.R. 42754), stating that the Federal Aviation Administration (FAA) was considering amending SFAR 27 to require compliance with EPA standards for exhaust emissions of smoke that are effective beginning January 1, 1976.

These standards, as currently prescribed in 40 CFR Part 87, apply to new and in-use aircraft turbofan or turbojet engines that are designed for subsonic airplanes and that have a rated power of 29,000 pounds thrust or greater. Interested persons were afforded an opportunity to participate in the proposed rulemaking. Due consideration was given to all relevant matter presented.

Ten comments were received in response to the Notice. Three commenters objected to U.S. action affecting foreign registered aircraft operated in the United States, and stated that the U.S. is seeking to apply the standards of SFAR 27 to these aircraft prior to an international agreement thereon. The FAA believes, as stated in response to a similar comment on the Notice proposing amendment SFAR 27–1, that it would be desirable that the introduction of standards affecting international civil aviation be accomplished in an orderly fashion through the development of international standards. However, it is the position of the United States that no international treaties, conventions, or agreements currently prevent the FAA from discharging its responsibilities under the Clean Air Act, as amended, in accordance with the EPA standards prescribed in 40 CFR Part 87. Therefore, as previously stated, SFAR 27, including this and subsequent amendments, must be applied to foreign aircraft as prescribed herein.

Several commenters suggested that, since § 14(b) now reads in part: "Compliance with the exhaust emissions requirements of this SFAR that apply to Class T–4 engines beginning on February 1, 1974, is shown if the engine is either a JT8D–11 or JT8D–15 or . . . ," compliance with these additional smoke requirements for Class T2 of, or more than, 29,000 pounds thrust should be shown in the same manner. The 1974 requirements applied to only one engine type, the JT8D, which could easily be handled in the regulations as a separate item. There are currently three engine types (the JT9D, CF6, and RB 211) within Class T2, and there may be applications for certification of additional engine types within this class and thrust range. Therefore, the more generalized language identifying the engine class, rather than the engine type, is used to designate which engines, including modifications, must conform to these standards.

One commenter was concerned that § 14(d), in conjunction with § 14(c), would imply that the FAA wants to witness the airlines' maintenance programs, and suggested that, as there are no present requirements for continuous monitoring of emissions, this section should be deleted or confined solely to engine certification testing conducted by the manufacturer. The FAA disagrees with this comment. SFAR 27 should contain, for the specific purpose of emissions testing, the same kind of FAA monitoring authority that is now exercised with respect to airworthiness and related testing or compliance programs. Section 14(d) is, therefore, adopted as proposed.

Several commenters were concerned that the proposed amendment contained no guidelines concerning the submission of engine test data that would be required to show compliance. The proposed amendment is explicit as to the maximum smoke number allowable for any class T2 engine of or over 29,000 pounds thrust, and clearly states that the "related test procedures" must be those prescribed by the EPA in 40 CFR Part 87. Further definition of compliance is not deemed necessary to this amendment. The FAA has a current program to develop correction procedures that would compensate for atmospheric variations. The results of these efforts will be reviewed to determine whether additional rule making is necessary.

One commenter stated that there was no specific requirement that foreign-built engines must comply with the proposed amendment. Section 1 of SFAR 27 states that the SFAR applies to both U.S. and foreign airplanes. Thus, there is no need to repeat the applicability to foreign aircraft in each amendment.

One commenter suggested that proposed § 15(b) be amended to apply the standards to each engine type, or type design, rather than "the engine." The FAA believes that it is clearly understood, throughout the type certification regulations, that compliance with those regulations involves compliance of the type design therewith. Further specificity is, therefore, not believed to be necessary in this regard. This proposal is, therefore, adopted as proposed.

One commenter proposed that § 14(c) include a reference to overhaul rework standards, in addition to maintenance requirements. The FAA does not consider this addition necessary since overhaul rework standards are included in the general term "applicable maintenance requirements."

This amendment adds a new paragraph (b) to section 17 (and reorganizes the current text of that section as paragraph (a)) providing that compliance with the applicable exhaust emissions requirements of 40 CFR Part 87 must be shown for the issuance of supplemental or amended type certificates for engines. This change was not specifically proposed in the Notice. However, current SFAR 27 prohibits the operation in the U.S. of any airplane unless each engine complies with the EPA exhaust emissions standards that apply beginning February 1, 1974 (§ 25). The regulation also prohibits the issuance of airworthiness approval tags to individual engines that do not meet those February 1, 1974 standards (§ 19). The Notice proposed to expand those sections to cover new and in use engines with respect to the EPA exhaust emissions standards that apply beginning January 1, 1976. After reviewing these current and proposed requirements affecting individual engines, the FAA believes that it may be misleading to issue supplemental or amended type certificates for engines that cannot legally operate and for which no airworthiness approval tag can be issued. Therefore, to ensure consistency with these other provisions and avoid inducing applicants into supplemental or amended type certification programs for engines whose operation cannot be permitted because of the scope of EPA Part 87, this amendment provides that the FAA will not issue supplemental or amended type certificates for engines that do not meet the applicable EPA standards. This is consistent with § 15(b) which requires compliance with the same applicable EPA standards as a condition to the issuance of original type certificates for engines.

Authority: [Section 232 of the Clean Air Act, as amended December 31, 1970, P.L. 91-604 (42 U.S.C. § 1857f-10), as delegated (36 FR 8733); 40 CFR Part 87 (38 FR 19088): sections 307(c), 313(a), 601 and 603 of the Federal Aviation Act of 1958 (49 U.S.C. §§ 1348(c), 1354(a), 1421, and 1423); section 6(c) of the Department of Transportation Act (49 U.S.C. § 1655(c))].

In consideration of the foregoing, Special Federal Aviation Regulation (SFAR) 27 is amended, effective January 1, 1976.

Special Federal Aviation Regulation 27-3

Compliance With EPA Exhaust Emission (Smoke) Standard for JT3D Engines Manufactured on or After January 1, 1978

Adopted: December 21, 1977 **Effective: January 1, 1978**

(Published in 42 FR 64676, December 29, 1977)

SUMMARY: This amendment defines "date of manufacture" for purposes of the rule, establishes a requirement for marking each aircraft engine for which emission standards are prescribed, and ensures compliance with the exhaust emission (smoke) standards issued by the Environmental Protection Agency (EPA) that apply to new Pratt and Whitney JT3D engines manufactured on or after January 1, 1978. The issuance of this amendment is required by the Clean Air Act, as amended.

FOR FURTHER INFORMATION CONTACT:

Emanuel M. Ballenzweig, Assistant Chief, High Altitude Pollution Staff (AEQ-10), Office of Environmental Quality, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 425-8933.

SUPPLEMENTARY INFORMATION:

HISTORY

On July 21, 1977, the FAA published Notice No. 77-13 in the FEDERAL REGISTER (42 FR 37413) proposing amendments of the aircraft emissions rules in Special Federal Aviation Regulation (SFAR) 27 in order to ensure compliance with the aircraft emission (smoke) standard issued by the Environmental Protection Agency (EPA) that is effective January 1, 1978. Comments were invited on the proposal.

Under § 232 of the Clean Air Amendments of 1970, Pub. L. 91-604, the FAA has a duty to issue regulations that ensure compliance with all aircraft emissions standards promulgated by EPA under § 231 of the Act, which are currently prescribed in EPA Regulations Part 87 (40 CFR Part 87) issued on July 6, 1973, and published in the FEDERAL REGISTER (38 FR 19038) on July 17, 1973.

Accordingly, on December 26, 1973, the FAA issued Special Federal Aviation Regulation (SFAR) 27, published in the FEDERAL REGISTER (38 FR 35437) on December 28, 1973. The purpose of SFAR 27 is to ensure compliance with aircraft and aircraft engine emission standards and test procedures issued by the EPA in EPA Part 87.

The SFAR, as originally issued, incorporated only those standards and procedures in EPA Part 87 that were effective beginning February 1, 1974. On December 23, 1974, the FAA issued Amendment SFAR 27-1 to SFAR 27 (39 FR 45008; December 30, 1974) which incorporated the fuel venting emission standards in EPA Part 87 that were effective beginning January 1, 1975. A second amendment, SFAR 27-2, was issued on November 23, 1975, and published in the FEDERAL REGISTER on November 28, 1975 (40 FR 55311). That amendment incorporated smoke emission standards in EPA Part 87 applicable to new and in-use aircraft turbofan or turbojet engines designed for subsonic airplanes that have a rated power of 29,000 pounds thrust or greater, effective January 1, 1976.

DISCUSSION OF RULE

As stated above, the FAA, in Notice No. 77-13, proposed to add to SFAR-27 the provisions of EPA Part 87 that apply, beginning January 1, 1978. These provisions apply to engines specified in § 87.21(c) of EPA Part 87 (40 CFR 87.21(c)). That rule provides that the exhaust emissions of smoke from each new Class T3 engine (which, as defined in § 87.1(a) of EPA Part 87, is limited to engines of the JT3D model family) "manufactured" on or after January 1, 1978, shall not exceed a smoke number of 25 (as determined in accordance with the test procedures of EPA Part 87). Only four comments were received. The comments concerned the application of aircraft emission standards to airplanes being exported, and the method of identifying and approving engines. These comments are addressed in the following discussions.

DATE OF "MANUFACTURE"

The Notice proposed to amend §§ 15, 17, 21, and 25 by adding a reference to the January 1, 1978, EPA standards for all engines "manufactured" on and after that date. As stated in the preamble to the Notice, the intent was to make it clear that the date of FAA approval of an engine for installation on an aircraft is the date that the FAA regards an engine as "manufactured" (as that term is used in EPA Part 87). Further review indicates that, in parallel fashion, a foreign manufactured engine should also be regarded as "manufactured" on the date that the foreign country of manufacture issues an approval equivalent to that issued by the FAA. Considering these factors, the word "manufactured," as used in the Notice, is defined in a new § 12. Accordingly, in amended § 15, the phrase "manufactured on or after January 1, 1978" refers to engines which, on or after January 1, 1978, are originally approved by the FAA, or by a foreign country of manufacture, for installation on airplanes. The new definition in § 12 makes it clear that the date of approval of each individual engine, not the date of approval of the type design, is the controlling date. The words "original" and "originally" are used to make it clear that the date that an in-use engine is approved for installation on airplanes, following rebuilding or maintenance, is not relevant. This discussion also applies to the amendments to §§ 17, 21, and 25.

For the same reasons, and consistent with the proposal to express date of "manufacture" in terms of approval dates, § 19 is also amended to make it clear that issuance of an original FAA approval for installation of an engine on an airplane (including FAA acceptance of an equivalent approval by a foreign country of manufacture) is contingent upon compliance with applicable emission standards. This applies with respect to any EPA standard that relates to the date of "manufacture" of an aircraft engine (as defined in § 12), and that is added later to this SFAR, not only the standard being incorporated by this amendment. See also the discussion below concerning the forms of FAA approval.

FORMS OF ENGINE APPROVAL

The Notice proposed to add the words "or other FAA approval for installation of an engine on aircraft" following the reference to "airworthiness approval tag" in § 19. This reflected the fact that FAA approvals of engines are not limited to airworthiness approval tags. Further review of this proposal indicates that all references to airworthiness approval tags can be deleted since they are clearly covered by the broad reference to "FAA approval for installation of an engine on an airplane." In addition, for engines manufactured in a foreign country with which the United States has an agreement for the acceptance of the engine (See § 21.500 of Part 21 of the Federal Aviation Regulations, 14 CFR Part 21), the FAA approval is exercised in the form of FAA acceptance of an approval issued by the country of manufacture. To prevent possible confusion, it is believed that this form of FAA approval should be clearly set forth. Accordingly, the provisions of § 19, as amended, refer to "original FAA approval for installation of an engine on an airplane (including FAA acceptance of an equivalent original approval issued by a foreign country of manufacture . . .)." The word "aircraft" (proposed in the Notice) is changed to "airplane" since the definition of "aircraft" in § 87.1(a)(3) of EPA Part 87 is limited to "airplane."

MARKING OF ENGINES

The Notice proposed to add new paragraphs (b) and (c) to § 19 to require that engines be permanently marked to identify the date of manufacture, and (for noncomplying engines) to require that the identification plate for the engine contain a statement that the "need for emission compliance must be determined before installation." FAA review of comments indicates that the intent of this proposal (which is to facilitate ready identification of engines that should not be installed or operated in airplanes) can be expressed more clearly and achieved with less burden on manufacturers. Several comments indicate concern with the limited space available on an engine for placing identification data and with the proposed statement regarding the need to determine compliance with applicable standards before installation of the engine on an airplane. Some commenters noted that the proposed statement would not indicate the basis for the required determination. The FAA agrees that the rule as proposed would not result in the most efficient use of the available space for making critical information on an engine. It is believed that the purpose of the proposal can be more efficiently achieved, with less impact on manufacturers, by requiring that the model designation (which is already required to be on the identification plate) correspond to approved type design data indicating whether applicable emission standards are complied with. As adopted, this identification requirement applies only to engines that are covered by FAA emission regulations that become effective on or after January 1, 1978. It should be noted that, like that proposed in the NPRM, this requirement is not limited to the new JT3D engines being added by this amendment, but also applies to engines subject to any emission standards that are added to SFAR 27 after January 1, 1978. Since a particular engine type may be required to comply with a series of emission standards during a long production run, this provision is intended to allow the installer (such as maintenance personnel and aircraft operators) to readily determine, by reference to the type certificate data for each model designation, whether a particular engine may be installed or operated after the compliance dates prescribed by EPA.

CONTINUING COMPLIANCE

As is the case under the current provisions in SFAR 27 concerning smoke emissions, compliance with the smoke emissions requirements for Class T3 engines manufactured on or after January 1, 1978, may, under this amendment, be shown by equipping the affected engines with approved combustors of a design that has been shown to result in the engine meeting the applicable smoke number, and by maintaining the engines in accordance with applicable airworthiness maintenance requirements. Accordingly, as proposed in the Notice, the January 1, 1978, date is added to § 14(c) and the text of that paragraph is consolidated to eliminate duplication. If additional requirements to detect and prevent deterioration of smoke emissions characteristics during the service life of an engine should become necessary, production line testing of sample engines, periodic testing of in-use engines, or similar regulations necessary to ensure compliance with these standards will be proposed by the FAA in a later rule-making action.

EXPORT AIRCRAFT

One commenter discussed the applicability of SFAR 27 to the exporting of aircraft with standard airworthiness certificates (or their foreign equivalent) for use "exclusively" outside the U.S. when the importing country does not require emission controls. The commenter suggested that SFAR 27 be amended to state clearly that it applies only to foreign civil airplanes that are routinely operated within the United States. The commenter stated that the FAA could not make this change to SFAR 27 unless EPA first made a similar change to its Part 87. (A letter requesting such a change has been sent to EPA by the commenter.) The FAA, agrees that if EPA agrees with this request, the appropriate means of narrowing the applicablity of SFAR 27, with respect to EPA standards already incorporated in it, would be to change EPA Part 87 by narrowing the application of the standards for aircraft emissions with respect to certain clearly specified classes of operation which are determined by EPA not to significantly affect air quality inside the United States. The FAA will continue to work with EPA to resolve this issue, since under Section 232 of the Clean Air Act, the Department of Transportation must "insure compliance with all standards" issued by EPA. In this connection, § 3 of SFAR 27 provides that, if EPA relaxes Part 87, that relaxation is incorporated in the SFAR automatically, without further action by FAA.

EFFECTIVE DATE

As stated above, the requirements of 40 CFR Part 87 that are incorporated in this amendment become effective beginning on January 1, 1978. Section 232 of the Clean Air Act, as amended (42 U.S.C. § 1857f-10), requires the FAA to prescribe regulations to ensure compliance with all standards prescribed under § 231 of that Act (42 U.S.C. § 1857f-9) which include the newly incorporated provisions of EPA Part 87. Accordingly, this amendment must be effective no later than January 1, 1978. Good cause, therefore, exists for making this amendment effective in less than 30 days after publication in the FEDERAL REGISTER.

DRAFTING INFORMATION

The principal authors of this document are Emanuel M. Ballenzweig, Office of Environmental Quality, and Richard W. Danforth, Office of the Chief Counsel.

ADOPTION OF THE AMENDMENT

Accordingly, Special Federal Aviation Regulation (SFAR) 27 of the Federal Aviation Regulations is amended, effective January 1, 1978.

(Sec. 232, Clean Air Act, as amended December 31, 1970, Pub. L. 91-604 (42 U.S.C. § 1857f-10, as delegated (36 FR 8733); 40 CFR Part 87 (38 FR 19088); Secs. 307(c), 313(a), 601 and 603, Federal Aviation Act of 1958 (49 U.S.C. §§ 1348(c), 1354(a), 1421, and 1423; Sec. 6(c) Department of Transportation Act (49 U.S.C. § 1655(c).)

The Federal Aviation Administration has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11821, as amended by Executive Order 11949, and OMB Circular A-107.

Special Federal Aviation Regulation 27-4

Compliance With EPA Smoke Emissions Standard for In-Use JT3D Engines

Adopted: October 23, 1980 Effective: December 1, 1980

(Published in 45 FR 71980, October 30, 1980)

SUMMARY: This amendment to the FAA airplane emissions rules requires compliance with the aircraft and aircraft engine emissions (smoke) standards for in-use JT3D engines in accordance with the compliance schedule established on October 30, 1979, by the U.S. Environmental Protection Agency (EPA) under 40 CFR Part 87 (44 FR 64266, November 6, 1979). This amendment covers all civil JT3D powered aircraft operated in the United States with a U.S. standard airworthiness certificate (or foreign equivalent). It reflects the EPA's extension of compliance deadlines to be more, though not completely, compatible with the FAA's aircraft operation noise limits rule applicable to certain JT3D-powered aircraft in domestic service (14 CFR Part 91, Subpart E). It requires timely modification by all U.S. foreign operators of in-use JT3D engines manufactured before January 1, 1978, in accordance with a phased compliance schedule. That schedule prescribes intermediate compliance dates of January 1, 1981, and January 1, 1983; with full compliance beginning January 1, 1985. JT3D engines manufactured on or after January 1, 1978, are already required by EPA to meet those engine emission standards. This FAA rulemaking action is required by Section 232 of the Clean Air Act, as amended in 1970 by Pub. L. 91-604 (42 U.S.C. § 1857f-10).

FOR FURTHER INFORMATION CONTACT:

For information concerning enforcement of SFAR 27 which implements 40 CFR Part 87:

Mr[illegible]manuel M. Ballenzweig, Air Quality Division (AEE-300), Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; (202) 755-8933.

For information concerning the substance of 40 CFR Part 87:

Mr. George Kittredge, Office of Mobile Source Air Pollution Control, AW455, Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460; (202) 426-2514.

SUPPLEMENTARY INFORMATION:

REGULATORY HISTORY

On April 14, 1980, the FAA published Notice No. 80-6 (45 FR 25350) proposing to amend SFAR 27, "Fuel Venting and Exhaust Emission Requirements for Turbine Engine Powered Airplanes." That notice proposed amendments to ensure compliance with the EPA emissions standards for in-use JT3D engines. Interested persons were invited to participate in this rulemaking by submitting written comments on the proposed rule. The notice recognized the division of regulatory responsibility between the EPA (under § 231 of the Clean Air Act, as amended, 42 U.S.C. § 1857f-9) and the Secretary of Transportation (under § 232 of that Act, 42 U.S.C. § 1857f-10). Therefore, comments were not requested concerning the substance or the compliance dates of the already final requirements of the EPA's Part 87 that were incorporated in the FAA proposal. Since such comments would involve EPA's regulatory authority, over which the FAA has no control, they should have been submitted directly to the EPA prior to finalization of the most recent amendment to the EPA standards issued on October 30, 1979. Nevertheless, most comments received addressed those issues over which the FAA has no authority. These were referred to the EPA for consideration. All comments received have been given full consideration in the promulgation of this amendment which, after consultation with the EPA, adopts the proposals in Notice No. 80-6 without substantive change.

Under § 232 of the Clean Air Amendments of 1970, Pub. L. 91-604, the FAA must issue regulations to ensure compliance with all aircraft emissions standards promulgated by the EPA under § 231 of the Act. The EPA regulations are currently prescribed under 40 CFR Part 87 originally published in the *Federal Register* on July 17, 1973 (38 FR 19088). Accordingly, on December 26, 1973, the FAA issued Special Federal Aviation Regulation (SFAR) 27, (38 FR 35437, December 28, 1973). The purpose of SFAR 27 is to fulfill FAA statutory responsibilities to ensure compliance with aircraft and aircraft engine emissions standards and related test procedures under EPA's (40 CFR) Part 87.

SFAR 27, as originally issued, governed compliance of only those standards and procedures in EPA Part 87 that were effective beginning February 1, 1974. On December 23, 1974, the FAA amended SFAR 27 (Amdt. SFAR 27-1: 39 FR 45008, December 30, 1974) to regulate compliance with the fuel venting standards in EPA Part 87 that became effective January 1, 1975. Amendment SFAR 27-2, effective January 1, 1976 (40 FR 55311, November 28, 1975), governs compliance with smoke emissions standards in EPA's Part 87 applicable to new and in-use aircraft turbofan or turborjet engines with a rated power of 29,000 pounds thrust or greater, that are designed for operation on subsonic airplanes. A third amendment (Amdt. SFAR 27-3; 42 FR 64876, December 29, 1977) regulates compliance of JT3D engines manufactured on and after January 1, 1978, with smoke emissions standards in EPA's Part 87.

DISCUSSION OF THE AMENDMENT

Overview

This amendment to SFAR-27, pursuant to the Clean Air Amendments of 1970, requires compliance with the EPA's Part 87 exhaust emission (smoke) requirements that apply to "in-use" JT3D engines on EPA's prescribed phased compliance schedule (40 CFR 87.31(c)). It provides that the exhaust emissions of each in-use Class T3 engine, specified under § 87.1(a) as "gas turbine engines of the JT3D Model family," may not exceed a smoke number of 25, when measured in accordance with the related test procedures under EPA's Part 87. To meet these smoke requirements for Class T3 engines requires a retrofit or a replacement of the combustor in JT3D engines manufactured before January 1, 1978. Those manufactured on or after that date must already comply.

That provision of EPA's Part 87 affecting in-use JT3D engines was originally scheduled to take effect January 1, 1978. As a result of a petition from the Air Transport Association of America (ATA), the EPA relaxed the compliance schedule to permit 90 percent compliance by September 1, 1980, with full compliance by September 1, 1981 (41 FR 54861, December 15, 1976). Subsequent to an FAA suggestion, the EPA again amended the compliance schedule (44 FR 64266; November 6, 1979). The new schedule coincides with 14 CFR 91.305, the FAA's phased schedule for noise compliance by U.S. operators of JT3D-powered airplanes operated domestically under FAR Parts 121 and 135 (43 FR 12815, March 24, 1978). It should be noted that the phased compliance schedule in EPA's Part 87 applies to all civil JT3D-powered airplanes that operate in the United States under a U.S. standard airworthiness certificate (or foreign equivalent). Thus, it applies equally to U.S. and foreign operators of those airplanes with JT3D engines. The compliance schedule precribed under 40 CFR 87.31(c) is as follows:

"(c) Exhaust emissions of smoke from each in-use aircraft gas turbine engine of Class T3 shall not exceed a smoke number of 25. Each operator shall achieve compliance in accordance with the following schedule:

(1) One quarter of its operational Class T3 engines by January 1, 1981.

(2) One half of its operational Class T3 engines by January 1, 1983.

(3) All of its operational Class T3 engines by January 1, 1985.

"This compliance schedule notwithstanding, Class T3 engines which do not meet a smoke number of 25 may continue to be operated if, under an FAA approved plan, replacement engines or replacement airplanes have been ordered and are scheduled for delivery prior to January 1, 1985, but not after the dates specified in the plan. For the purpose of this paragraph, replacement engines are engines of a class different from Class T3 and have been shown to meet the smoke emission standards in this part appropriate to their class."

This amendment to SFAR 27 requires compliance in accordance with 40 CFR 87.31(c) and, thus, the FAA has no discretion in establishing or modifying the rule in areas such as (1) the regulated persons, engines, or airplanes; (2) the emissions standards; or (3) the compliance schedule. Many commenters to the notice opposed the unilateral actions being taken by the United States that they considered to be counter to International Civil Aviation Organization (ICAO) and European Civil Aviation Conference (ECAC) positions which oppose emissions standards that require modification to in-service aircraft engines. The EPA's response to those comments is contained in the preamble of the final rulemaking taken by EPA with regard to JT3D smoke emissions standards (44 FR 64266, November 6, 1979). The EPA rejected those arguments at that time because that rulemaking represented a delay in the effective dates of a standard that had been promulgated in 1973 which antedated any positions taken by ICAO Committees or by the ECAC. Other commenters considered the phased compliance schedule to be burdensome and wanted a rule change, a waiver, or an exemption for particular types of operations such as travel clubs, international operations, etc. The EPA has indicated that they do not plan to change the applicability or the schedule for compliance with the JT3D smoke standards. They have rejected requests for a rule change or exemptions based upon such considerations as (1) limited operations that do not represent a large environmental burden, (2) disparity of emissions and noise compliance schedules for an operator, and (3) economic burden and lack of air quality justification. The EPA's stated position on each respective point may be summarized as follows: (1) the operations of each operator of aircraft powered by JT3D engines may contribute little to environmental degradation, but the total environmental burden, that is composed of many such operations, has to be reduced if the nation's air quality goals are to be achieved; (2) the compliance schedule has been delayed twice and no adequate justification has been shown for further changes in the schedule since a schedule based on category of operators or operations would be discriminatory; and (3) the EPA conducted the required economic and air quality analyses when it established the standard and schedule.

Concerning requests for waivers or exemptions, the EPA has indicated that as a policy it does not grant exemptions from the provisions of Federal emissions standards, except under the most extenuating circumstances. The Clean Air Act makes no mention of exemptions in Section 231 pertaining to aircraft emissions. The only provision of this nature in 40 CFR Part 87 appears in Subpart J, which was added to the basic standards in December 1973, (38 FR 35000) to provide a mechanism for operators to request temporary delays in the compliance dates for the fuel venting and JT8D smoke retrofit standards after several foreign airlines experienced difficulty in acquiring and arranging for installation of the necessary replacement parts. The JT3D smoke retrofit program is not presently covered by Subpart J, because the compliance date that was established (and since extended) was set to allow liberal time for development and certification of the necessary replacement parts, and it was not envisioned that any operators would need special delays to meet the compliance schedule. However, should that be the case, the EPA has indicated that it will consider extending the provisions of Subpart J, "Temporary Exemption from Air Emissions Standards," to include the JT3D smoke retrofit program.

For the information of any interested parties, the provisions of Subpart J which are most relevant to potential applicants for temporary EPA exemptions are as follows:

§ 87.101 Application for temporary exemption.

(a) The Administrator of the Environmental Protection Agency may grant to any aircraft or aircraft engine temporary exemption from any applicable standard under § 87.11(a) or § 87.31(a), provided that the owner or operator of such aircraft or aircraft engine demonstrates:

(1) All good faith efforts to achieve compliance with such standards.

(2) Inability to comply with such standard due to circumstances beyond his control, and

(3) A plan by which he will achieve such compliance in the shortest time which is feasible.

(b) Applications for temporary exemption from the requirements of § 87.31(a) shall be submitted in duplicate to the Administrator of the Environmental Protection Agency and shall contain the following information:

(1) The name and address of the applicant,

(2) The standard or requirement from which temporary exemption is requested,

(3) The number of aircraft or aircraft engines subject to the requirement for which a temporary exemption is requested,

(4) The efforts made by the applicant to accomplish compliance, including ordering of equipment and scheduling of maintenance work, and the dates of these efforts,

(5) A detailed statement of reasons why the applicant will not be in compliance when the standard or requirement becomes effective,

(6) The name of the equipment supplier and/or the name of the firm retained to perform the maintenance work,

(7) The applicant's proposed timetable for installation of equipment and obtaining necessary approvals for each aircraft or aircraft engine for which temporary exemption is requested, and

(8) The name of the person responsible for accomplishing compliance according to the timetable proposed by the applicant.

(c) Prior to taking action on an application for temporary exemption, the Administrator shall consult with the Secretary of Transportation. A copy of the applicant's request should be submitted by the applicant to the Secretary of Transportation.

(d) The Administrator shall publish in the *Federal Register* the name of the owner or operator to whom a temporary exemption is granted and the period of such exemption.

(e) No state or political subdivision thereof may attempt to enforce a standard respecting fuel venting or smoke emissions from an aircraft or engine if such aircraft or engine has been granted an exemption from such standard."

December 15, 1976, was the effective date for the EPA rulemaking that first extended the compliance date for smoke standards applicable to JT3D engines. The extension was predicated on EPA's determination that a means of achieving compliance had been developed, was completing service evaluation, and would be available for installation beginning in the spring of 1978. Since those operators contemplating operation of JT3D-powered airplanes after 1980 have been given adequate time to order retrofit kits (and any required tooling) or new combustors, the EPA has indicated that it will not consider favorably requests for temporary delays in compliance that do not demonstrate that a conscientious effort was made to comply with the requirements. Purchasers of noncomplying aircraft subsequent to December 15, 1976, should not expect special considerations by the EPA simply because they were ignorant of the legal emissions requirements.

As provided in § 9 of SFAR 27, should the EPA act through rule or interpretations to modify the compliance requirements, these actions would be reflected in FAA's enforcement activities, as appropriate.

DISCUSSION OF COMMENTS AND THE RULES

The following is a discussion of pertinent portions of the proposal to SFAR 27 (Notice No. 80-6) and any comments related to the subject matter covered.

Local Regulations

Commenters representing international air carriers expressed concern that some U.S. airports might attempt to apply more stringent regulations than those imposed by the Federal Government. That concern is unfounded. Section 233 of the Clean Air Act effectively prohibits such action as it states that no State or political subdivision may adopt or attempt to enforce any standard concerning emissions of air pollutants from any aircraft or aircraft engine unless that standard is identical to the Federal standards.

Operational Engines

Though the term "operational engines" is not defined in 40 CFR Part 87, the previous quote from § 87.31(c) indicates that operational Class T3 engines are a subset of the in-use aircraft gas turbine engines of Class T3. (The term "in-use aircraft gas turbine engine" is defined in Part 87 as an aircraft gas turbine which is in service.) For purposes of enforcement, "operational Class T3 engines" include only those engines installed on airplanes that operate in the United States. Therefore, spare engines will not be monitored, though they will have to come into compliance at about the same rate as operational engines in order to keep an operator's airplane fleet in compliance when complying operational engines need to be removed. The EPA has indicated that this enforcement approach is consistent with 40 CFR Part 87.

Replacment Airplanes

The EPA has defined the term "replacement engines" in § 87.31(c) where the term "replacement airplane" was introduced, but did not define the latter term because the EPA assumed that an analogous definition was implied. For purposes of enforcement, a "replacement airplane" is an airplane powered by engines, other than Class T3, that meets applicable smoke emission requirements. The EPA has indicated that this approach is consistent with 40 CFR Part 87, as interpreted by the EPA.

Achieving Compliance

Pratt and Whitney (P&W) Service Bulletin No. 4694 describes the methods and parts for modification of in-use JT3D engines to provide a burner configuration that results in smoke density levels consistent with the EPA maximum limit. One commenter noted "unsatisfactory results" from such a burner configuration, but the commenter did not provide any information to support that assertion. The burner retrofit configuration in the referenced Service Bulletin (also described in the FAA-approved Engineering Change 284890) has been installed in a JT3D–7 engine and shown to produce maximum smoke numbers well below the standard of 25 during separate test runs. In addition, the approved modification has undergone several thousand cycles of engine testing, several airline tests, and more than 150,000 hours of service tests. Another comment stated that "the burner modifications necessary to reduce smoke emissions are believed to have been sufficiently service tested for performance and durability." The FAA agrees. Based on these tests, the burner retrofit configuration described in Service Bulletin 4694 is considered to be in conformance with the EPA standards. The EPA, therefore, regards modification of a JT3D engine in accordance with the above Service Bulletin to be satisfactory evidence of compliance with 40 CFR Part 87, if that engine is properly maintained.

Thus, in a fashion similar to that used previously in SFAR 27 to ensure compliance by in-use JT8D engines, this amendment incorporates by reference the P&W Service Bulletin No. 4694 in § 14 of the SFAR. The Service Bulletin is available for examination in the FAA Rules Docket, AGC–204, Room 916, 800 Independence Avenue, S.W., Washington, D.C. 20591, or may be obtained from Pratt and Whitney Aircraft Division of United Technologies Corporation, 400 Main Street, East Hartford, Connecticut 06108. In addition, to ensure that the incorporated materials are reasonably available to interested persons, it will also be available at the locations listed in the new § 10(e). The incorporation by reference has been approved by the Director of the Federal Register pursuant to 5 U.S.C. 552(a) and 1 CFR Part 51. It should be noted that those incorporated documents describe merely one acceptable means of compliance for an in-use JT3D engine to achieve the EPA smoke standards. Any other means, consistent with § 11 of the SFAR, that is demonstrated by the prescribed test procedures of EPA's Part 87 to limit engine emissions below smoke number 25 will be accepted as compliance with the provisions of § 87.31(c) that are incorporated in this amendment to SFAR 27.

P&W Service Bulletin 2417, which was incorporated by reference in SFAR 27, has been cancelled by Pratt and Whitney and has been incorporated in parts catalogs. Since retrofit in accordance with P&W Service Bulletin 2531 is sufficient to meet JT8D smoke requirements without reference to Service Bulletin 2417 or Engineering Change 197707 (which provide the details needed for conducting a service evaluation of the smoke reduction chamber configuration for JT8D engines), the incorporation by reference to P&W Service Bulletin 2417 and P&W Engineering Change 197707 is no longer needed, and has been deleted from SFAR 27.

Airplanes and Engines Covered by Replacement Plans

JT3D engines or JT3D-powered airplanes that are scheduled to be replaced with complying engines or airplanes before 1985 may continue to be operated after the 1981 and 1983 interim dates in the phased compliance schedule, if those engines or airplanes are covered by an FAA-approved replacement plan (§ 87.31(c)). Thus, an operator may elect to submit to the FAA for approval a plan under which replacement engines (engines of a class different than Class T3 that have been shown to meet EPA smoke emission requirements) or replacement airplanes (airplanes powered by engines of a class different than Class T3 engines that meet applicable EPA smoke emission requirements) have been ordered and are scheduled for delivery prior to January 1, 1985. If the plan is approved, those engines and airplanes included in the plan do not have to comply with the phased compliance schedule for Class T3 engines until January 1, 1985, or an earlier date specified in the plan. Those approved replacement plans may constitute a compliance strategy for smoke emissions even if a replacement plan is not needed for the FAA's operating noise limits rule. The noise rule does not require compliance before 1985 for Part 91 and 123 operations and for airplanes engaged in foreign air commerce in the United States under an approved method of apportionment. Thus, some operators may wish to request approval of a replacement plan for smoke emission compliance purposes only. Replacement plans for noise that are submitted by operators under 14 CFR 91.306 which have FAA approval may, upon request, serve as FAA-approved plans for the EPA smoke emissions standards as well.

Under this amendment, any replacement plan submitted solely for smoke emissions purposes should be submitted to FAA's Office of Environment and Energy and should, at a minimum, include (1) the operator's name and address, (2) the name, title, address and phone number of the person who submitted the plan, (3) the operator's current and projected inventory of JT3D engines (by serial number) and JT3D-powered airplanes (by aircraft registration number and airplane serial number) covered by this SFAR, (4) the verifiable order and schedule for replacement of those engines or airplanes, and (5) certification that the plan is true and complete (under penalty of 18 U.S.C. 1001). If a replacement plan strategy is selected, the plan should be submitted to the FAA by December 1, 1980, to provide sufficient time for the FAA approval process to be completed prior to the first interim compliance date, January 1, 1981. Later submissions might not be approved before compliance is required, and will not be a basis for relief from compliance with the rule without EPA remedial action.

The approval process for replacement plans includes consideration of whether the plan would provide benefits similar to the emissions reduction that would be achieved through a phased retrofit program without replacement. Thus, a plan submitted by an operator with a large JT3D-powered fleet may be unacceptable if it delays replacement of a substantial portion of its fleet until December 1984, and does not provide a compelling reason for such an inordinate delay. In considering approval of specific replacement plans for emissions submitted by those operators required to prepare compliance plans for noise (under 14 CFR 91.308) the approval process of replacement plans for emissions will include a comparison between plans for consistency and differences. While some minor differences might be expected since the objectives are not the same, each operator's fleet projections and compliance strategy should be traceable among any different plans the operator submits. Any unplanned changes in an operator's equipment inventory or plans for replacement of aircraft or engines covered by this SFAR will necessitate an update in the replacement plan.

Several commenters said that even though most operators will be replacing their JT3D-powered aircraft, their filing or replacement plans would place an unnecessary administrative burden on the FAA. These commenters would prefer an exemption or waiver. This option was discussed earlier and it was indicated that FAA has no authority to grant exemptions or waivers from the EPA standards (see § 9(a) of SFAR 27). Since EPA has given operators the option of submitting replacement plans, FAA will provide the necessary review of these plans.

Replacement Credit

"Replacement credit" permits the operator of an airplane (or engine) covered by an FAA-approved replacement plan to continue to operate that airplane (or engine) until 1985 or an earlier date specified in the plan. For compliance purposes, each airplane or engine scheduled for replacement in an FAA-approved plan will be counted as if it were in compliance and any airplane or engine that has been replaced by each interim compliance date will be counted in the fleet count for that date.

Retirement Credit

On December 15, 1976, the EPA announced (43 FR 54861) that compliance with its smoke emissions standards for Class T3 engines was technically achievable. One of the options available to operators at that time was retirement of aircraft on which Class T3 engines were installed (an option still available). The retirement option was not addressed in the preamble to the proposal. Since "retirement credit" is applicable under the FAA's operating noise rule and achieves the air quality goals of EPA, the concept of retirement credit has been accepted by the EPA as a compliance strategy consistent with Part 87. Permitting the use of this concept increases the consistency between compliance with the Part 91 noise requirements and the SFAR emissions requirements. Retirement credit permits the operators of airplanes covered by 40 CFR 87.31(c) to count the associated Class T3 operational engines as complying engines if those airplanes are retired from any future operation in the United States without replacement after December 15, 1976. This is similar to the procedures that operators are allowed to follow in fulfilling the requirements of 14 CFR 91.305, though the earliest date for emissions and noise retirement credit are different (December 15, 1976 vice January 1, 1977). Retirement credits only apply to engines installed on airplanes that are retired; spare engines are not eligible for such credit. The credit is not available until shown to be a true and complete retirement from U.S. service without replacement. If an airplane or engine for which retirement credit has been given is replaced or operated in the United States even by another operator, the credit is, of course, forfeited.

Operators electing to take retirement credit should certify (under penalty of 18 U.S.C. 1001) the following information in writing to the FAA's Director of Environment and Energy before December 1, 1980 for 1981 compliance, and December 1, 1982 for 1983 compliance purposes: (1) the operator's name and address, (2) the name, title, address and phone number of the person submitting the information, (3) the date of the submission, (4) a statement that the operator is eligible for "retirement credit" in meeting compliance on the interim dates, (5) the operator's inventory of JT3D-powered airplanes and engines covered by this SFAR (by aircraft registration number, airplane serial number, and engine serial number) with an indication of those airplanes that have been retired after December 15, 1976, including the date when each listed airplane was retired from service in the United States without replacement.

Compliance Schedule (Interim Compliance Dates)

The EPA has indicated that the proportions prescribed by 40 CFR 87.31(c) for interim compliance dates apply to the operational engines and not the individual JT3D-powered airplanes. Specifically, unless an operator has FAA approval for a replacement plan or has elected to use retirement credit before the date specified in the previous discussion, the proportions apply to the total number of operational engines owned or controlled by each operator on, and after, each interim compliance date. If replacement or retirement credit is selected by an operator, these factors are considered in calculating the proportions on the interim compliance date.

In general, each proportion is the quotient of the number of "complying operational engines" divided by the total number of operational engines" in the operator's fleet. The number of "complying operational engines" is (the sum of) the number of any operational Class T3 engines that meet the EPA smoke emissions standard, plus the number of any Class T3 engines installed on aircraft that were retired completely from U.S. service without replacement between December 15, 1976 and the interim date, plus the number of any operational engines of Class T3 by an FAA-approved replacement plan. The "total number of operational engines" in the fleet is (the sum of) the number of all operational engines owned or controlled on the interim compliance date, plus the number of any Class T3 engines installed on aircraft retired completely from U.S. service without replacement between December 15, 1976 and the interim date, plus the number of any engines of Class T3 covered by an FAA-approved replacement plan that have been replaced by the interim date.

Comments were received from operators which have no interim noise compliance dates and object to interim compliance dates for smoke emissions. One aspect of their objection was the likelihood that aircraft would be retired or replaced by 1985 to meet the FAA noise rule, making engine modifications for earlier emissions compliance dates an uneconomic alternative. The EPA has considered the argument and, as indicated earlier, considers it discriminatory to establish a different set of compliance dates for different classes of operators. Another aspect of that concern is summarized in the comment from the International Air Transport Association which said:

> "There are significant real difficulties which are equally applicable to the intermediate partial compliance requirements of 40 CFR 87. We understand that, in computing the number of engines required to be modified, reference would probably be made by the FAA to the Operations Specifications of the airline in question. In deciding which aircraft to list in its Operations Specifications the airline could list the registration numbers of just the number of aircraft of the type(s) it operates in U.S. service theoretically needed to support these services. This would minimize the number of engines required to be modified but could restrict the ability of the airline to obtain maximum utilization of the whole fleet of the type(s) concerned. Alternatively, the airline could reduce this constraint by listing the registration numbers of more than this theoretical minimum number of aircraft (up to the whole of its fleet of the type(s) concerned), but clearly this would increase the number of engines required to be modified. Moreover, it would be unreasonable to expect an airline to modify more engines than required for service to the U.S. when no other country requires a similar modification."

The above comment correctly assumes that aircraft listed on an operations specification will be considered to represent those aircraft that a foreign operator has determined to be those operating in the United States (without regard to the frequency of operations). Whether the operator chooses to minimize the number of airplanes operated into the United States or to increase operational flexibility by designating more airplanes for U.S. operations is a matter best reserved to the operator. Balancing these factors should be a prerogative of the operator and should not be dictated by the rule. Those who have listed more than the minimum number of aircraft (which is a typical approach) may be eligible for retirement credit for those aircraft removed without replacement from any future U.S. service.

As indicated in SFAR 27 § 9(a), and as discussed earlier, the FAA cannot grant variances from the prescribed schedule established by the EPA. All comments on that schedule have been referred to the EPA for consideration. Operators are reminded that they should take the necessary actions to meet the phased compliance schedule. Several comments mentioned lack of availability of retrofit kits, lack of tooling, and lack of personnel to perform the modifications. EPA has indicated that such conditions might be the basis for a request to the EPA for a temporary delay in compliance, if the operator can demonstrate that good faith attempts have been made since December 15, 1976, to order retrofit kits and tooling and to obtain maintenance personnel (or a maintenance organization) to perform the retrofitting of engines and that such attempts have been unsuccessful. (See 40 CFR 87.101).

Pratt and Whitney Aircraft indicated on July 3, 1980, that it originally planned to produce sets of retrofit parts sufficient for 1000 engines, However, they decided to limit their production run to 100 sets due to a lack of orders. As of that date they had orders for 93 sets (mostly from one operator) with seven sets still available. The lead time for additional sets of parts is sixteen months. They have had no orders for tooling and did not believe that any operator or maintenance shop has developed the tooling capability. The lead time for tooling from P&W is about one year, although maintenance shops can fabricate their own tooling sooner. From those indications, no serious attempt has been made by any operator to achieve compliance through the retrofit option.

Some comments indicated that it will be extremely difficult, if not impossible, for the FAA to determine the degree of compliance, particularly by foreign operators. The FAA does not agree. Its monitoring program will include field examinations and review of documentation such as operations specifications, airplane flight manuals, noise compliance plans, etc. The compliance plan is the only document that is not applicable to foreign operators. The FAA program should be sufficient for the purposes of ensuring that operators meet the compliance schedule. If, based on experience, additional means are found to be necessary, the FAA will move promptly to develop and implement additional mechanisms to ensure compliance.

Certification and Engine Approval Actions

Sections 15, 17, 19, and 21 of SFAR 27 have been revised to reflect the EPA requirements applicable to in-use JT3D engines. Those revisions are unchanged from the proposed amendment. No commenter addressed the issues presented.

Since the EPA amendment to § 87.31(c) concerning in-use JT3D engines affects the continued operation of airplanes powered by JT3D engines, it raised questions concerning the need and the appropriateness of including references to in-use JT3D engines in the certificate actions covered by §§ 15, 17, and 21 and the approval actions in § 19. After reviewing these current provisions in light of the EPA amendment, it would be misleading to issue certificates or make approvals after the final compliance date for engines that cannot legally be operated in the United States. This amendment is consistent with the treatment given Class T2 and T4 engines and T3 engines manufactured on and after January 1, 1978. However, operation of non-complying, in-use JT3D engines manufactured before January 1, 1978, is not completely prohibited until January 1, 1985. The EPA's 1981 and 1983 interim compliance dates for in-use JT3D engines do not apply to certificate and approval actions for JT3D engines manufactured before January 1, 1978. Thus, if the FAA set any cutoff date for certifications and approvals prior to January 1, 1985, (the final compliance date in EPA's Part 87 that applies to all JT3D engines) would be more stringent than the EPA rule. This amendment uses that date as the cutoff date for further certificate and approval action, regardless of the date of application.

As each Class T3 engine is modified to meet the smoke emissions standards, the model designator on the engine identification plate must be modified in accordance with P&W Service Bulletin 4694 in order to comply with § 19(b) of SFAR 27.

Operation

Section 25 has been amended to reflect EPA's Part 87 phased compliance schedule for in-use JT3D-powered airplanes operated in the United States. Comments recommending that FAA delete the interim compliance dates cannot be acted upon. As discussed earlier, such a change is outside the scope of FAA's authority.

Codification

The proposal indicated that consideration is being given to codifying permanently the FAA airplane emissions regulations (SFAR 27) under Title 14 of the Code of Federal Regulations (CFR). There are several options being considered, including (1) redistributing the provisions of SFAR 27 among the various parts of the code as appropriate, e.g., Part 21, Part 33, Part 45, Part 91, etc., and (2) continuing to provide a single code unit for engine emissions by establishing a new Part in Title 14, e.g., Part 34, with references to other affected parts. Three commenters supported the desirability of permanent codification and none opposed such action. One commenter suggested that Part 33 "Airworthiness Standards: aircraft engines" be amended to include the provisions of SFAR 27. The other commenters suggested permanent codification in a single separate unit. (One suggested numbering it Part 34.) The FAA is continuing its review of the issues before taking action to modify the form (not substance) of the regulation.

ADOPTION OF THE AMENDMENT

Accordingly, 14 CFR Chapter I, Special Federal Aviation Regulation (SFAR) 27 is amended, effective December 1, 1980.

(Sec. 232, Clean Air Act, as amended December 31, 1970, PL. 91-604 (42 U.S.C. § 1875f-10) as delegated (36 FR 3733); 40 CFR Part 87; Secs. 307(c), 313(a), 601, and 603, Federal Aviation Act of 1958 (49 U.S.C. §§ 1348(c), 1345(a), 1421, and 1423; Sec. 6c, Department of Transportation Act (49 U.S.C. § 1655(c).)

Note.—The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044 as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the first person identified above under the caption "FOR FURTHER INFORMATION CONTACT."

Note.—The incorporations by reference contained in this amendment were approved by the Director of the Federal Register under 5 U.S.C. § 552(a) and 1 CFR Part 51 on August 18, 1980.

Special Federal Aviation Regulation 27-5

Fuel Venting and Exhaust Emission Requirements For Turbine Engine Powered Airplanes: Compliance with Revised EPA Emission Standards and Test Procedures

Adopted: December 8, 1983 **Effective: January 1, 1984**

(Published in 48 FR 56735, December 23, 1983)

SUMMARY: **This amendment to the FAA airplane emissions rule is necessary because of the revised requirements of 40 CFR Part 87, Control of Air Pollution from Aircraft and Aircraft Engines; Emission Standards and Test Procedures as amended effective January 31, 1983 (47 FR 58462). 40 CFR Part 87 includes new exhaust emission requirements for all aircraft engines manufactured on or after January 1, 1984. This amendment is in accordance with section 232 of the Clean Air Act, as amended, (42 USC § 7401) and the authority delegated to the Administrator of the FAA by the Secretary of Transportation.**

COMPLIANCE—January 1, 1984 or as noted. The Director of the FEDERAL REGISTER approved the incorporation by reference of the compliance procedures set forth in Appendices 2 through 6 of ICAO ANNEX 16 Volume II—Aircraft Engine Emissions, dated February 18, 1982, effective January 1, 1984.

FOR FURTHER INFORMATION CONTACT:

Nicholas P. Krull, Air Quality Division (AEE-300), Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW, Washington, D.C. 20591, telephone (202) 755-1851).

SUPPLEMENTARY INFORMATION:

HISTORY

Under section 232 of the Clean Air Act of 1970, as amended, (the Act) (42 USC § 7401), the FAA has a duty to issue regulations that ensure compliance with all aircraft emission standards promulgated by the EPA pursuant to section 231 of the Act. The EPA aircraft emission standards are currently prescribed in EPA Regulations Part 87 (40 CFR Part 87), originally issued on July 6, 1973, and published in the Federal Register (38 FR 19088) on July 17, 1973.

Pursuant to § 232 of the Act, on December 26, 1973, the FAA issued Special Federal Aviation Regulation (SFAR) 27 (38 FR 35437; December 28, 1973). The purpose of SFAR 27 was to ensure compliance with aircraft and aircraft engine emission standards and test procedures issued by the EPA in 40 CFR Part 87.

SFAR 27, as originally issued, governed compliance with only those standards and procedures in EPA Part 87 that were to become effective on February 1, 1974. On December 23, 1974, the FAA issued SFAR 27-1 (39 FR 45008; December 30, 1974) to require compliance with the fuel venting emission standards in EPA Part 87 that became effective on January 1, 1975. SFAR 27-2, effective January 1, 1976 (40 FR 55311; November 28, 1975), governs compliance with smoke emissions standards in EPA's Part 87 applicable to new and in-use aircraft turbofan or turbojet engines with a rated power of 29,000 pounds thrust or greater, that are designed for installation and operation on subsonic airplanes. SFAR 27-3, effective January 1, 1978 (42 FR 64876; December 29, 1977) regulates compliance of JT3D engines manufactured on and after January 1, 1978, with smoke emissions standards in EPA's Part 87. Finally, SFAR 27-4, effective December 1, 1980 (45 FR 71960; October 30 1980), was issued to require phased compliance of in-use JT3D engines beginning on January 1, 1981, with total compliance required by January 1, 1985. Pursuant to § 3(b) of SFAR 27, the requirement for compliance of in-use JT3D engines was automatically deleted when the EPA deleted the requirement from 40 CFR Part 87 (48 FR 2716; January 20, 1983).

On December 30, 1982, the EPA completed rulemaking which revised 40 CFR Part 87 and republished the rule in its entirety (47 FR 58462; December 30, 1982). The revised rule contains a number of changes in definitions as well as new standards for smoke and unburned hydrocarbon emissions. The compliance date for the new smoke and unburned hydrocarbon emission standards has been scheduled to take effect January 1, 1984. On September 23, 1983, the FAA issued Notice No. 83-12 (48 FR 43637; September 23, 1983), which proposed a revised SFAR 27-5 to include the new requirements of 40 CFR Part 87. The comment period closed on October 24, 1983. A number of comments were received and they are discussed below along with the discussion of the amendment.

DISCUSSION OF THE AMENDMENT

Overview

When the EPA originally issued 40 CFR Part 87, in 1973, it was recognized that some portion of the standards could be implemented in a very short time period while other portions would require a much longer time period for development and testing. Accordingly, the FAA proceeded to promulgate enforcement regulations for the near term requirements in the form of a Special Federal Aviation Regulation, SFAR No. 27. Since that time, the EPA has recognized that some of the longer term requirements were either unneeded or practically unattainable. Those longer term requirements, originally scheduled to become effective in 1978, have been delayed until January 1, 1984, and have been extensively revised. Revised regulation 40 CFR Part 87 now contains all of the standards and the last of the effectivity dates for implementation. Pursuant to section 232 of the Clean Air Act, as amended, the FAA is required to promulgate enforcement regulations for all of the standards in 40 CFR Part 87. Therefore, this amendment is consistent with the EPA revisions to 40 CFR Part 87 and FAA's statutory duty under the Clean Air Act.

Deletion of specific reference to previous findings of compliance

SFAR 27 contained specific references to manufacturer's service bulletins containing instructions for modifications which, if incorporated in engines, constituted satisfactory evidence of compliance with 40 CFR Part 87. The references also included engine model designations which had previously been found to comply with the smoke standards of 40 CFR Part 87. That list had become long and required frequent updating as new engine models were found to demonstrate compliance with the standards. As revised, 40 CFR Part 87 contains new and in some cases more stringent standards for all turbojet and turboprop engines manufactured after January 1, 1984. The listing of all of these model designations would become cumbersome and impractical requiring frequent revision of the Federal Aviation Regulations. The FAA now deletes those specific references and instead, SFAR 27-5 states that "All methods of demonstrating compliance and all model designations previously having been found acceptable to the Administrator of the FAA shall be deemed to continue to be an acceptable demonstration of compliance with the specific standards for which they were approved."

Practical interpretation of the requirement for total compliance

The standards established by the EPA are applicable to each engine of the types and upon the dates specified in 40 CFR Part 87. Taken literally this would require that every engine to which the standards apply must demonstrate compliance with the standards. This construction would require testing each and every engine manufactured on or after January 1, 1984, unless specifically exempted. The EPA recognized in the preamble to 40 CFR Part 87, and specifically in § 87.89, that exhaust emission compliance testing of every engine would be excessively costly and accepted the need to substitute a preproduction certification program in place of extensive testing of all newly produced and in service

engines. Section 87.89 has delegated the definition of this substitute certification program to the FAA with the proviso that the FAA establish the level of confidence required, provide a practical interpretation of the requirement for total compliance, establish a testing program to ensure compliance, and obtain the approval of the Administrator of the EPA prior to January 1, 1984. Consistent with EPA's position regarding compliance verification (47 FR 58469), the FAA understands that this compliance verification policy is applicable to all of the standards in 40 CFR Part 87. It should be clearly understood that any substitute certification program must have the concurrence of the Administrator of the EPA.

In developing the United States position on the International Civil Aviation Organization (ICAO) Standards and Recommended Practices for Aircraft Engine Emissions, the FAA consulted extensively with the EPA on acceptable practical interpretations of a requirement for total compliance and a testing program to ensure compliance. At that time the EPA indicated that the minimum acceptable levels would be 90% confidence that 95% of the engines would meet the gaseous emission standards and a 90% confidence that every engine would meet the smoke standards. ICAO adopted such a compliance procedure based upon a composite analysis of historic engine to engine variabilities. Since the EPA has stressed the desirability of maintaining commonality with ICAO, the FAA adopts the compliance procedure defined in Appendix 6 to ICAO Annex 16 Volume II—Aircraft Engine Emissions, dated February 18, 1982. The Administrator of the EPA has concurred in FAA adoption of the ICAO compliance procedure. The FAA continues to solicit recommendations for equivalent procedures and will give each recommendation full consideration if it is accompanied by substantive supporting data. Should an equivalent or better procedure be received, the FAA will seek EPA concurrence with that as an alternate compliance procedure. The FAA cannot, however, adopt any proposed compliance procedure unless it has the concurrence of the Administrator of the EPA.

Comments in response to Notice 83-12

A total of seven written and three oral comments were received in response to Notice 83-12. The majority of those comments concerned the alleged redundancy of the regulation, the marking and identification requirements, and the exemption and reporting procedures. At least two comments indicated some continuing confusion over the definition of the term "date of manufacture". All of the comments have been reviewed and, as discussed below, the proposed rule has been revised to reflect meritorious comments and suggestions within the scope of Notice 83-12.

Redundancy of the proposed compliance requirements

One commenter noted that the proposed rule imposes compliance requirements upon the engine manufacturer, installers of engines, aircraft manufacturers, and airplane operators. The commenter felt that compliance need only be the responsibility of the engine manufacturer. From a legal viewpoint, the Clean Air Act requires that the regulations "shall include provisions making such standards applicable in the issuance, amendment, modification, suspension, or revocation of *any* certificate authorized by the Federal Aviation Act or the Department of Transportation Act." (42 USC 7572(a), *emphasis added*). From a practical and legal viewpoint, the engine manufacturer can only maintain control over the engines while they are in his possession. Yet, situations may arise where compliance may subsequently be required. For example, an engine originally manufactured and sold for export may be exempt from the standards but that same engine may not be exempt if it is resold for use in the United States as a civil aircraft engine. In that event, it would no longer be the manufacturer's responsibility to ensure compliance but rather the operator or the new owner. Similarly, an engine originally sold by a manufacturer for use in general aviation is not subject to the unburned hydrocarbon standard. However, that standard is applicable if the rated output exceeds 26.7 kilonewtons and the engine is installed and operated in the U.S. by an air carrier or a commercial operator. For these and other reasons, it is necessary to impose compliance requirements upon airplane operators, mechanics, and aircraft manufacturers, as well as the engine manufacturer. It also explains the justification for requiring that the engine exhaust emission compliance status be clearly and permanently identified in a prominent location on each powerplant.

Exemption Requirements

As stated in Notice 83–12, the EPA has retained primary rulemaking authority over the emissions standards, and the test procedures for control of those standards, in all aircraft. However, under the revised Part 87, responsibility for initial evaluation and processing of requests for certain specified exemptions has been transferred to the Secretary of the Department of Transportation (DOT). Several exemptions listed at 40 CFR § 87.7 clearly fall within the discretion of the FAA and EPA and therefore can only be considered by utilizing the procedural requirements of 14 CFR Part 11. These exemptions include 40 CFR § 87.7(a) (4), § 87.7(c), and § 87.7(d). However, several commenters have asked if it was the FAA's intent to require a formal exemption request for the remainder of the exemptions listed under 40 CFR § 87.7. To make the requirements clear, each of the remaining exemptions will be discussed in turn.

40 CFR § 87.7(a) (1) establishes an exemption for engines installed on an aircraft intended for export. The FAA has an obligation to ensure that exported engines not in compliance with the emission requirements are not operated in the United States. With this objective in mind, the FAA has determined that the marking and recording requirements discussed below, together with the existing Part 21, Subpart L requirements for Export Airworthiness Approvals, will ensure that exported engines cannot be returned for use in the United States without emission modification to bring them into compliance with SFAR 27. Accordingly, the final rule has been amended to require that any engine manufactured under the provisions of 40 CFR § 87.7(a) (1) for export on or after January 1, 1984, must have marked upon the engine manufacturer's identification plate (I.D. plate) the designator NON-US. In addition, the permanent powerplant record (engine logbook or equivalent document) must note that the exempt engine is not suitable for operation within the United States. Finally, when the exempt engine is installed in an aircraft, the aircraft's logbook must note that the aircraft "may not be operated within the United States." This notation may be removed if the engine is later modified to comply with 40 CFR Part 87, or becomes specifically exempted from the applicable emission requirements. These changes are necessary to avoid requiring engine manufacturers to obtain a formal exemption or report the serial number of engines intended for export. The later requirement would be duplicative and unnecessary in light of current regulation and policy.

40 CFR § 87.7(a) (2) permits non complying engines to be flown for short durations to a base where maintenance can be performed, to a point of storage, of for the purpose of returning an aircraft to service. Since § 87.7(a) (2) in effect establishes an applicability criteria for Part 87, the FAA does not feel that the procedural requirements of 14 CFR Part 11 must be followed in order to legally conduct this type of operation. Instead of requiring an operator to "petition" for a nondiscretionary exemption, the FAA recognizes a need for prior notification of intent to conduct such operations. Therefore, though the procedural requirements of 14 CFR Part 11 need not be followed, prior FAA authorization is required. Since the FAA views this type of operation as analogous to those requiring a special flight permit, to obtain such authorization, the operator should follow the procedures outlines in 14 CFR § 21.199.

40 CFR § 87.7(a) (3) allows for flights of short duration at infrequent intervals if conducted as part of an official visit by representatives of foreign governments. After careful consideration, the FAA has determined that the infrequency of these types of operations does not warrant prior FAA approval of any sort. Therefore, no additional FAA approval is necessary if the flight is indeed of limited duration and is conducted exclusively for the purpose of an official foreign visit.

40 CFR § 87.7(b) provides for an exemption for engines operated in the United States when certain low production limits are maintained. The FAA has an obligation to ensure that the low production limits of 40 CFR § 87.7(b) are not exceeded. The only adequate method to ensure compliance with the low production limits is to require a formal exemption request. Consequently, each time a manufacturer intends to use or sell a non complying engine in the United States, a request for exemption utilizing the procedural requirements of 14 CFR Part 11 must be made. To implement this procedure, a manufacturer should request an exemption for any group of 20 or less engines that a manufacturer intends to produce under a given type certificate during a given calendar year. Assuming that there are no irregularities, the FAA will grant the exemption on condition that the manufacturer advise the FAA of that engine's serial number and type certificate number on or before the last day of the month following the date of its manufacture. In addition, as will be explained later, that engine must be labelled as EXEMPT at FAA Headquarters which will contain the serial number of the engine as part of each exemption. At the same time, the manufacturer must note in the permanent powerplant record that the engine is not required to meet the emissions standards of 40 CFR Part 87 by reason of the low production exemption. In a related issue, several commenters have stated that it is impossible to project the market for specified engines in advance of the manufacture date and therefore it is unreasonable to require manufacturers to advise the FAA of exempted engines "on or before the date of manufacture" as proposed in Section 9(c). The FAA agrees with these commenters and has revised the final rule to provide relief in several ways. First, as adopted, the final rule requires that a manufacturer advise the FAA of the serial numbers of only those engines which have been granted a specific exemption pursuant to 14 CFR Part 11. In addition, the manufacturer may wait until the last day of the month following the date of the engine's manufacture to provide the FAA with this information.

Date of Manufacture

Although the identical definition has been part of SFAR-27 for some time, several comments were received which indicate that the term "Date of Manufacture", was misunderstood or subject to misinterpretation. One commenter expressed a desire to interpret "date of manufacture" as the date of installation on an airplane or even the date of sale of that aircraft. A second commenter expressed concern that engines in transport from the engine manufacturer to an airframe manufacturer (or in inventory at a general aviation facility) on January 1, 1984, would be subject to the revised 40 CFR Part 87 requirements. Both interpretations are too broad. The meaning of the term "Date of Manufacture" was extensively discussed in the preamble to SFAR 27-3 adopted December 21, 1977, and remains unchanged. However, to further clarify, the date on which an engine is "manufactured" is the date on which the engine is originally approved by the FAA. An engine is considered to be approved by the FAA when it is produced under an FAA Production Certificate issued under the provisions of 14 CFR Part 21, Subpart G, or under a Type Certificate Only issued under the provisions of 14 CFR Part 21, Subpart F. In addition, the engine must have been determined by the manufacturer to be in conformity with its type design and in a condition for safe operation in accordance with 14 CFR § 21.165 or § 21.130 as appropriate. Evidence of this approval is the manufacturer's fire proof identification (I.D.) plate that must be affixed to the engine in accordance with 14 CFR § 45.11 and § 45.13. In the case of a foreign manufactured engine, the "date of manufacture" is the date when the certificating authority of the country of manufacture issues a certifying statement to the effect that the engine conforms to its U.S. type design and is in a condition for safe operation.

Notice 83-12 proposed that the date of manufacture be included on the I.D. plate as part of the engine identification data. Several commenters have alleged that this requirement is redundant since the same information must be included as part of the permanent powerplant record that accompanies the engine, and because the date of manufacture is directly traceable to the engine serial number. Obviously, knowledge of the date of manufacture is essential to the FAA inspector who must determine whether the revised requirements of 40 CFR Part 87 are applicable to the engine. For an engine with a long maintenance history, specific items of information may be difficult and time consuming to locate. In addition, since there is currently no requirement that serial numbers be reported to the FAA, no master list exists for an inspector to consult. In any event, an inspector should not be required to examine additional records to determine if a particular engine must comply with revised 40 CFR Part 87. It is therefore, the FAA's position that the only efficient method of determining whether a particular engine falls within the requirements of 40 CFR Part 87 is to have the date of manufacture indicated on the I.D. plate of each particular engine. The FAA also wishes to make clear that only those engines manufactured on or after January 1, 1984, covered by the applicable provisions of 40 CFR Part 87 will be required to include the date of manufacture as part of the identification data of the engine I.D. plate. This can be done simply by indicating the month and year in a clear and concise fashion. As an example, the FAA suggests a designation such as "01-84" be marked on the I.D. plate to indicate a manufacturing date of January, 1984, as a means of complying with the "date of manufacture" requirement. The FAA is aware of several manufacturers who already routinely include this information on the engine I.D. plate. Therefore, it should not be unduly burdensome to now require this information.

Another comment regarding the date of manufacture requirement was that such a date may be confusing and misleading to potential buyers of used engines. The commenter asserted that, as an example, a 15 year old engine may have had substantial service and parts replacement by the year 1999, leaving only the I.D. plate of 1984 vintage. However, this same commenter admitted that the date of manufacture, as well as data on major maintenance actions, parts replacement, and service bulletin compliance, is already included in the engine logbook which is required for each engine. Therefore, potential buyers of the engine should not be confused as to the engine's serviceability. Rather, the date of manufacture should help to clarify what maintenance and parts are required to keep in compliance with SFAR-27.

Identification Data and Recording Requirements

In addition to the date of manufacture, proposed Section 20 of Notice 83-12 requires that the I.D. plate show a designation that indicates the status of compliance with the applicable provisions of 40 CFR Part 87. Several commenters have asked what type of indication the FAA will require. They are concerned that some I.D. plates may have to be redesigned, thus adding to the cost of production, if additional I.D. plate information data is required. After careful consideration of this problem, the FAA has devised the following 6 character marking scheme which should cover all possible marking problems that may be encountered and at the same time minimize the use of space on plates already being utilized. For engines that, in all respects, comply with the requirements of SFAR-27 and 40 CFR Part 87, the I.D. plate must contain the designation COMPLY. Any engines subject to SFAR-27, but which has been granted an exemption under any provision found in 40 CFR § 87.7(a) (4), § 87.7(b), (c) or (d), must contain the designator EXEMPT on the I.D. plate. Finally, any engine which is exempt from the requirements of SFAR-27 by reason of it being manufactured for use outside the United States [40 CFR § 87.7(a) (1)], the I.D. plate must be marked with the designator NON-US. These designations have been approved by the FAA and have been made part of Section 20 in the final rule. Other designation codes are possible for use. However, in order to retain as uniform a marking scheme as possible, only those designators approved by the Administrator of the FAA may be utilized.

Several additional recording requirements have also been included in Section 20 of the final rule. Section 20(c) requires that, for any engine which has been granted an exemption by reason of any provision found in 40 CFR § 87.7(a) (1), (a) (4), (b), (c), or (d), an indication of the exemption and the reason for the grant must be inserted in the permanent powerplant record (engine logbook or equivalent document), that accompanies the engine, at the time of manufacture. For example, if an engine has been granted an exemption by reason of it falling within the low production limits of 40 CFR § 87.7(b), the indication should state "EXEMPT for low production" or some similar notation. If an engine has been granted an exemption by reason of 40 CFR § 87.7(a) (1), the indication should read "NON-US, this engine does not comply with U.S. emissions requirements and must not be operated within the U.S."

Section 20(d) requires that, for engines rated in excess of 26.7 kilonewtons (Kn) that comply only with the required smoke number, the notation "May not be used as a commercial aircraft engine", as that term is defined in the SFAR 27-5, must be inserted in the permanent powerplant record at the time of engine manufacture. However, the I.D. plate designator COMPLY would be appropriate for these engines.

Finally, as previously mentioned, for aircraft assembled with engines exempt as a result of the export provision of 40 CFR § 87.7(a) (1), the notation "The aircraft may not be operated within the United States" must be inserted in the aircraft logbook at the time of engine installation. Other notations may be acceptable if prior FAA approval is obtained.

Stay of Emission Requirements for Class TF Engines

Subsequent to the publication of final rule 40 CFR Part 87, the General Aviation Manufacturers Association (GAMA) petitioned the Environmental Protection Agency for reconsideration of the smoke standard as applied to Class TF engines rated at 26.7 kn or below. Pursuant to an agreement between the parties, EPA has stayed the effectiveness of the smoke standard as applied to Class TF engines (48 FR 46481) October 12, 1983). The FAA has no way of knowing when or if EPA will lift this stay after reconsideration of the GAMA petition. Therefore, consistent with Section 3(b) of SFAR 27-5, the FAA will not enforce any additional requirements set forth in the final rule with respect to these engines while the stay is in effect. However, compliance with those requirements currently in effect will continue to be required. In addition, should EPA decide to reimpose any requirement previously imposed in 40 CFR Part 87, it will immediately become part of this rule.

Regulatory Impact Analysis

Prior to its enactment, the EPA determined that 40 CFR Part 87 would not constitute a major rule as defined by Executive Order 12291 (Order) and that it did not involve any significant increased costs or adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S. enterprises to compete with those of other countries when compared to the present regulations. The information base, including the economic analyses on which this determination was made, is collected in Public Docket No. OMSAPC-78-1 at the Environmental Protection Agency, Central Docket Section, West Tower Lobby, Gallery I, 401 M Street, S.W., Washington, D.C. 20460. In addition, several of the final EPA reports concerning this subject can be found as part of the docket for this proposed rule. As the purpose of the proposed amendments to SFAR 27 is to promulgate rules for the enforcement of revised 40 CFR Part 87, as required by statute, the FAA has made a determination that an additional analysis would, at this point, be duplicate and inappropriate. As a result, no new economic analysis will be conducted with regard to revised SFAR 27.

Impact on Small Entities

Because of the limited classes of engines to which 40 CFR Part 87 applies, the EPA earlier determined that enactment of that regulation would not have a significant economic impact on a substantial number of small entities (as defined by the Small Business Act). Therefore, no Regulatory Flexibility Analysis was prepared. Interested persons may review the information on which this determination was made at the locations previously mentioned. As the EPA is in a much better position to make a determination in that regard, the FAA adopts that finding.

Environmental Analysis

Pursuant to Department of Transportation, "Policies and Procedures for Considering Environmental Impacts" (FAA Order 1050.1C, Appendix 7, paragraph 5a.; 45 FR 2279, 2280, January 10, 1980), the FAA is categorically excluded from providing an environmental analysis with regard to the proposed amendments to SFAR 27 because it is mandated by law to issue regulations to ensure compliance with the EPA aircraft emissions standards and the EPA has performed all required environmental analyses prior to the issuance of those standards.

OMB Review

This action was submitted to the Office of Management and Budget for review as required by Executive Order 12291.

Good Cause Justification

Section 553 of the Administrative Procedure Act provides that the publication of a substantive rule shall be made not less than 30 days before its effective date except as otherwise provided by the agency for good cause found and published with the final rule. The EPA published the revised requirement of 40 CFR Part 87 on December 30, 1982. At that time, EPA announced a compliance date for the revised requirements of January 1, 1984. As previously stated, the FAA has a duty to issue regulations that ensure compliance with all aircraft emission standards. The amendments to SFAR 27 were published in notice form and the comments relating to that notice have been addressed. Inasmuch as the amendments to SFAR 27 are mainly procedural and the compliance date for CFR Part 87 was announced 13 months in advance, the FAA feels that there is good cause to dispense with the full 30-day publication period before the effectivity of SFAR 27-5.

Paperwork Reduction Act

Information collection requirements contained in this regulation (sections 9d, 12 and 20) have been approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act of 1980 (P.L. 96-511) and have been assigned OMB control number 2120-0508.

Accordingly, SFAR 27 of Title 14, Parts 11, 21, 43, 45, and 91 of the Code of Federal Regulations is revised and approved by the Office of Management and Budget under OMB control number 2120-0508, and § 11.101(b) of Subpart F is amended effective January 1, 1984.

NOTE: For reasons discussed earlier in the preamble: the FAA has determined that this document; (1) involves a proposed regulation which is not major under Executive Order 12291; (2) is not a significant rule pursuant to the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) it is certified under the criteria of the Regulatory Flexibility Act that this rule will not have a significant economic impact on a substantial number of small entities.

(Sec. 232, Clean Air Act, as amended Dec. 31, 1970, Pub. L. 91-604 (42 U.S.C. 1857f-10) as delegated (36 FR 3733); 40 CFR Part 87; secs. 307(c), 313(a), 601 and 603, Federal Aviation Act of 1958 (49 U.S.C. 1348(c), 1354(a), 1421, and 1423); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983)).

Special Federal Aviation Regulation 27

Fuel Venting and Exhaust Emission Requirements For Turbine Engine Powered Airplanes

[Sec. 1 General requirements.

(a) This SFAR provides for the approval or acceptance by the Administrator of the FAA for the Administrator of the EPA of testing and sampling methods, analytical techniques, and related equipment not identical to those specified in this Part. Before either approves or accepts any such alternate, equivalent, or otherwise nonidentical procedures or equipment, the Administrator of the FAA or the Administrator of the EPA shall consult with the other in determining whether or not the action requires rulemaking under sections 231 and 232 of the Clean Air Act, as amended, consistent with the responsibilities of the Administrator of the EPA and the Secretary of Transportation under sections 231 and 232 of the Act. (42 U.S.C. 7571, 7572).

(b) U.S. airplanes. This SFAR applies to civil airplanes that are powered by aircraft gas turbine engines of the classes specified herein and that have U.S. Standard Airworthiness Certificates.

(c) Foreign airplanes. Pursuant to the definition of "aircraft" in 40 CFR 87.1(a), this SFAR applies to civil airplanes that are powered by aircraft gas turbine engines of the classes specified herein and that have foreign airworthiness certificates that are equivalent to U.S. Standard Airworthiness Certificates. This includes only those foreign civil airplanes that, if registered in the United States, would be required by applicable Federal Aviation Regulations to have a U.S. standard airworthiness certificate in order to conduct the operations intended for the airplane.

Pursuant to 40 CFR 87.3, this SFAR does not apply where inconsistent with an obligation assumed by the United States to a foreign country in a treaty, convention, or agreement.

Sec. 3 Relation to 40 CFR Part 87

(a) Reference in this regulation to 40 CFR Part 87 refers to Title 40 of the Code of Federal Regulations, Chapter I—Environmental Protection Agency, Part 87, Control of Air Pollution from Aircraft and Aircraft Engines (40 CFR Part 87), originally issued on July 6, 1973, and published in the Federal Register (38 FR 19088) on July 17, 1973, as revised effective January 31, 1983 (47 FR 58462), as amended effective January 20, 1983 (48 FR 2716).

(b) This SFAR contains regulations to ensure compliance with certain standards in Environmental Protection Agency (EPA), 40 CFR Part 87. If EPA takes any action, including the issuance of an exemption or issuance of a revised or alternate procedure, test method, or other regulation, the effect of which is to relax, or delay the effective date of any provision of 40 CFR Part 87 that is made applicable to an aircraft under this SFAR, the new relaxed EPA requirement, upon its effective date, is incorporated into this SFAR and supersedes the provisions of this SFAR that are based on the provisions of 40 CFR Part 87 that were relaxed by such action.

(c) Unless otherwise stated, all terminology and abbreviations in this SFAR that are defined in 40 CFR Part 87 have the meaning specified in that Part, and]

[all terms in 40 CFR Part 87 that are not defined in that Part but that are used in this SFAR have the meaning given them in the Clean Air Act, as amended by 42 USC § 7401.

(d) All interpretations of 40 CFR Part 87 that are rendered by EPA also apply to this SFAR.

(e) Consistent with subsection (c) of this section, the following definitions apply:

(1) "Administrator of the FAA" means the Administrator of the Federal Aviation Administration or any other officer or employee of the Federal Aviation Administration to whom the authority involved may be delegated.

(2) "Administrator of the EPA" means the Administrator of the Environmental Protection Agency and any other officer or employee of the Environmental Protection Agency to whom the authority involved may be delegated.

Sec. 5 Additional EPA approvals and procedures

(a) If EPA, under 40 CFR 87.3(a) approves or accepts any testing and sampling procedures or methods, analytical techniques, and related equipment not identical to those specified in EPA Part 87, this SFAR requires a showing that such alternate, equivalent, or otherwise nonidentical procedures have been complied with, and that such alternate equipment was used to show compliance, unless the applicant elects to comply fully with 40 CFR Part 87.

(b) If the Administrator of the EPA after consultation with the Administrator of the FAA, prescribes special test procedures for any aircraft or aircraft engine that is not susceptible to satisfactory testing by the procedures in 40 CFR Part 87, this SFAR requires a showing that those special test procedures have been complied with.

(c) Wherever 40 CFR Part 87 requires agreement, acceptance, or approval by the Administrator of EPA, this SFAR requires a showing that such agreement or approval has been obtained.

Sec. 7 Relation to State and local regulations

(a) Pursuant to 42 U.S.C. § 7573, no state or political subdivision thereof may adopt or attempt to enforce any standard respecting emissions of any air pollutant from any aircraft or engine thereof unless that standard is identical to a standard made applicable to the aircraft by the terms of this SFAR.

(b) If EPA, by regulation or exemption, relaxes a provision of 40 CFR Part 87, no state or political subdivision thereof may adopt or attempt to enforce the terms of this SFAR that are superseded by the relaxed requirement.

(c) Consistent with § 87.6 of 40 CFR Part 87, if the Administrator of the FAA determines that any emission control regulation cannot be safely applied to an aircraft, that provision may not be adopted or enforced against that aircraft by a state or political subdivision thereof, even if it is in this SFAR.

(d) If any provision of this SFAR is rendered inapplicable to a foreign aircraft as provided in 40 CFR 87.3(c) and section 1(b) of this SFAR, that]

[provision may not be adopted or enforced against that foreign aircraft by a state or political subdivision thereof.

Sec. 9 Petitions for rulemaking and exemption

(a) Notwithstanding Part 11 of the Federal Aviation Regulations (14 CFR Part 11), all petitions for rulemaking involving either the substance of an emission standard prescribed by EPA that is incorporated in this SFAR, or the compliance date for such standard or procedure, must be submitted to EPA. Information copies of such petitions are invited by the FAA.

(b) Petitions for rulemaking or exemption involving provisions of this SFAR that do not affect the substance or the compliance date of an emission standard or test procedure that is prescribed by EPA, and petitions for exemptions under the provisions for which the EPA has specifically granted exemption authority to the Administrator of the FAA in 40 CFR 87.7(a) (4), (b), (c), and (d), are subject to Part 11 of the Federal Aviation Regulations (14 CFR Part 11).

(c) Any engine for which a petition for exemption has been granted pursuant to subsection (b) of this section must be reported to the FAA by serial number and type certificate number on or before the last day of the month following the date of manufacture as defined in section 12 of this SFAR.

(d) Notwithstanding any other requirement of 14 CFR § 45.13, an aircraft engine specifically exempted from the applicable requirements of this SFAR pursuant to subsection (b) of this section must have the designator EXEMPT, or an equivalent designator approved by the Administrator of the FAA, inscribed as part of the identification data of the engine.

(e) Exemptions granted pursuant to any provision of 40 CFR 87 or subsection (b) of this section are not transferrable to any other engine.

(f) Exemptions requested pursuant to the provisions of 40 CFR § 87.7(a) (2) must comply with the procedural requirements set forth in 14 CFR § 21.199.

Sec. 10 Incorporation by reference

(a) General. This SFAR prescribes certain standards and procedures which are not set forth in full text in the rule. On November 22, 1983, those standards and procedures were approved by the Office of the Federal Register for incorporation by reference pursuant to 5 U.S.C. 552(a) and 1 CFR Part 51.

(b) Changes to incorporated matter. Incorporated matter which is subject to subsequent change is incorporated by reference according to the specific reference and to the identification statement. Adoption of any subsequent change in incorporated matter that impacts compliance with standards and procedures is made under 14 CFR Part 11 and 1 CFR Part 51.

(c) Identification statement. The complete title or description which identifies each published matter incorporated by reference in this SFAR is as follows:

(1) ICAO Annex 16—Environmental Protection, Volume II—Aircraft Engine Emissions, Appendices 2 through 6 dated 18 February 1982. This document can be obtained from the International Civil Aviation Organization, P.O. Box 400, Succursale: Place de L'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2 at $3.00 per copy.

(d) Availability for inspection. A copy of each publication incorporated by reference in this SFAR is available for public inspection at the following locations:]

[(1) FAA Office of the Chief Counsel, Rules Docket, Room 916, Federal Aviation Administration Headquarters Building, 800 Independence Avenue, S.W., Washington, D.C. 20591

(2) Department of Transportation, Branch Library, Room 930, Federal Aviation Administration Headquarters Building, 800 Independence Avenue, S.W., Washington, D.C. 20591

(3) The respective offices of the Federal Aviation Administration as follows:

(i) New England Regional Office, 12 New England Executive Park, Burlington, Massachusetts 01803.

(ii) New York Aircraft Certification Office, 181 South Franklin Avenue, Room 202, Valley Stream, New York 11581.

(iii) Atlanta Aircraft Certification Office, 1075 Innerloop Road, College Park, Georgia 30337.

(iv) Chicago Aircraft Certification Office, 2300 East Devon, Des Plaines, Illinois 60018.

(v) Central Regional Office, 601 East Twelfth Street, Kansas City, Missouri 64106.

(vi) Southwest Regional Office, 4400 Blue Mound Road, Fort Worth, Texas 76101.

(vii) Denver Aircraft Certification Field Office, 10455 East 25th Avenue, Aurora, Colorado 80010.

(viii) Northwest Regional Office, 17900 Pacific Highway South, Seattle, Washington 98168.

(ix) Western Aircraft Certification Field Office, 15000 Aviation Boulevard, Hawthorne, California (Mail Address: P.O. Box 92007 Worldway Postal Center, Los Angeles, California 90009).

(x) Anchorage Aircraft Certification Field Office, 701 C. Street, Anchorage, Alaska 99513.

(xi) Honolulu Aircraft Certification Field Office, Prince Kuhio Building, 300 Ala Moana Boulevard, Room 7108, Honolulu, Hawaii (Mail Address: P.O. Box 50246, Honolulu, Hawaii 96850).

(xii) Los Angeles Aircraft Certification Office, 4334 Donald Douglas Drive, Long Beach, California 90808.

(xiii) Brussels Aircraft Certification Staff, 15 Rue de la Loi, B-1040 Brussels, Belgium.

(xiv) FAA Representative, Office of U.S. Consulate General, Avenida Presidente Wilson, 147 Rio De Janeiro, Brazil.

(4) The Office of the Federal Register, Room 8401, 1100 "L" Street, NW., Washington, D.C.

Sec. 11 Compliance with airworthiness regulations

It must be shown that the airplane meets the airworthiness regulations constituting the type certification basis of the airplane under all conditions in which compliance with this SFAR is shown.

Sec. 12 Date of manufacture

As used in this SFAR, unless 40 CFR Part 87 of the Clean Air Act, as amended, requires otherwise, the date on which an aircraft engine is] ["manufactured" is the date on which that individual engine is originally approved by the FAA, or by a foreign country of manufacture, for installation on an aircraft. Notwithstanding any other requirements of 14 CFR § 45.13, beginning January 1, 1984, the date of manufacture (month and year) must be included as part of the identification data of engines manufactured on or after that date.

Sec. 13 Engine classes and test configuration

(a) Consistent with section 3(c) of this SFAR, the following definitions in 40 CFR 87.1 apply:

(1) "Aircraft engine" means a propulsion engine which is installed in or which is manufactured for installation in an aircraft.

(2) "Class TP" means all aircraft turboprop engines.

(3) "Class TF" means all turbofan or turbojet aircraft engines except engines of Class T3, T8, and TSS.

(4) "Class T3" means all aircraft gas turbine engines of the JT3D model family.

(5) "Class T8" means all aircraft gas turbine engines of the JT8D model family.

(6) "Class TSS" means all aircraft gas turbine engines employed for propulsion of aircraft designed to operate at supersonic flight speeds.

(7) "Commercial aircraft engine" means any aircraft engine used or intended for use by an "air carrier" (including those engaged in "intrastate air transportation") or a "commercial operator" (including those engaged in "intrastate air transportation") as these terms are defined in the Federal Aviation Act and the Federal Aviation Regulations.

(8) "Commercial aircraft gas turbine engine" means a turboprop, turbofan, or turbojet commercial aircraft engine.

(b) As prescribed in 40 CFR Part 87, the complete engine as configured for final acceptance testing, including all accessories that might reasonably be expected to influence emissions to the atmosphere excluding auxiliary gearbox-mounted components required to drive aircraft systems and service air bleed, must be functional for all testing under this SFAR.

Sec. 14 Compliance

(a) Compliance with the fuel venting emissions requirements of this SFAR that apply beginning on February 1, 1974, and beginning January 1, 1975, may be shown by any means of compliance, applied to the airframe of the engine, that prevents the intentional discharge of fuel from fuel nozzle manifolds after the engines are shut down. Acceptable means of compliance include the following:

(1) Incorporation of an FAA approved system that recirculates the fuel back into the fuel system.

(2) Capping or securing the pressurization and drain valve.

(3) Manually draining the fuel from a holding tank into a container.

(b) Continued compliance with the exhaust emissions requirements of this SFAR that became effective on February 1, 1974, January 1, 1975, January 1, 1978, and January 1, 1984, for engines for which the type design has been shown to meet those requirements, is demonstrated if the engine is maintained in accordance with applicable maintenance requirements for 14 CFR Chapter I.]

[methods of demonstrating compliance and all model designations previously having been found acceptable to the Administrator of the FAA shall be deemed to continue to be an acceptable demonstration of compliance with the specific standards for which they were approved.

(c) Each applicant must allow the Administrator of the FAA to make, or witness, any test necessary to determine compliance with the applicable provisions of this SFAR.

(d) An acceptable alternative to testing every engine is described in Appendix 6 to Volume II—Aircraft Engine Emissions, of ICAO Annex 16—Environmental Protection, 18 February 1982, incorporated herein by reference as indicated in Section 10. Other methods of demonstrating compliance may be approved by the Administrator of the FAA with the concurrence of the Administrator of the EPA.

Sec. 15 Type certificates

(a) Notwithstanding Part 21 of the Federal Aviation Regulations, and irrespective of the date of application, no type certificate is issued, on and after the dates specified in subparagraphs (a) (1) through (a) (5) of this section, for the airplanes specified therein, unless:

(1) For airplanes powered by engines of Class TF, Class TP, Class T3, Class T8, or Class TSS, the airframe or engine complies with the fuel venting emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974, and January 1, 1975;

(2) For airplanes powered by engines of Class T8, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974;

(3) For airplanes powered by engines of Class TF that have a rated power of 29,000 pounds thrust or greater, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1976;

(4) For airplanes powered by engines of Class T3, each engine manufactured on or after January 1, 1978, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1978; and

(5) For airplanes powered by engines of Class TP, Class TF, Class T3, Class T8, and Class TSS—each engine manufactured on or after January 1, 1984, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that apply beginning January 1, 1984.

(b) Notwithstanding Part 21 of the Federal Aviation Regulations, and irrespective of the date of application, no type certificate is issued, on and after the dates specified in paragraphs (a) (2), (a) (3) and (a) (4) of this section, for an engine specified therein unless the engine complies with that subparagraph.

(c) Notwithstanding Part 21 of the Federal Aviation Regulations and irrespective of the date of application, no type certificate is issued on or after January 1, 1984, for any Class TP, Class TF, Class T3, Class T8, or Class TSS engine unless the engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that apply beginning January 1, 1984.]

[Sec. 17 Supplemental or amended type certificates

(a) Notwithstanding Part 21 of the Federal Aviation Regulations, and irrespective of the date of application, no supplemental or amended type certificate is issued on and after the dates specified in paragraphs (a) (1) through (a) (5) of this section, for the airplanes specified therein, unless:

(1) For airplanes powered by engines of Class TF, Class TP, Class T3, Class T8, or Class TSS, the airframe or engine complies with the fuel venting emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974, and January 1, 1975;

(2) For airplanes powered by engines of Class T8, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974;

(3) For airplanes powered by engines of Class TF that have a rated power of 29,000 pounds thrust or greater, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1976;

(4) For airplanes powered by engines of Class T3, each engine manufactured on or after January 1, 1978, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1978; and

(5) For airplanes powered by engines of Class TP, Class TF, Class T3, Class T8, and Class TSS—each engine manufactured on or after January 1, 1984, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that apply beginning January 1, 1984.

(b) Notwithstanding Part 21 of the Federal Aviation Regulations, and irrespective of the date of application, no supplemental or amended type certificate is issued, on or after the dates specified in paragraphs (a) (2), (a) (3), and (a) (4) of this section, for an engine specified therein, unless the engine complies with that paragraph.

(c) Notwithstanding Part 21 of the Federal Aviation Regulations and irrespective of the date of application, no supplemental or amended type certificate is issued on or after January 1, 1984, for any Class TP, Class TF, Class T3, Class T8, or Class TSS engine unless the engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that apply beginning January 1, 1984.

Sec. 19 Engine approvals

(a) On and after the dates specified in this paragraph, and notwithstanding Part 21 of the Federal Aviation Regulations, no original FAA approval for installation of an engine on aircraft covered by this SFAR (including FAA acceptance of an equivalent original approval issued on or before January 1, 1978, by a foreign country of manufacture) is made by the FAA:

(1) For an engine of Class T8, unless the engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974;

(2) For an engine of Class TF that has a rated power of 29,000 pounds thrust or greater, unless the engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1976;]

[(3) For an engine of Class T3, unless each engine manufactured on or after January 1, 1978, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1978; and

(4) For engines of Class TP, Class TF, Class T3, Class T8, or Class TSS, unless each engine manufactured on or after January 1, 1984, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that apply beginning January 1, 1984.

Sec. 20 Identification Data and Recording Requirements

(a) On or after January 1, 1984, notwithstanding 14 CFR Part 45, no original FAA approval for installation of an engine on an airplane (including FAA acceptance of an equivalent original approval issued on or after January 1, 1984, by a foreign country of manufacture) is made by the FAA, for an engine covered by this SFAR unless that engine has secured to it an identification plate displaying the date of manufacture and a designation, approved by the Administrator of the FAA, that indicates compliance with applicable provisions of 40 CFR Part 87. Approved indicators include COMPLY, EXEMPT, and NON-US as appropriate.

(b) On or after January 1, 1984, notwithstanding 14 CFR Part 45, no person may secure an identification plate to any airplane engine covered by this SFAR unless that engine complies with the applicable provisions of this SFAR.

(c) On or after January 1, 1984, notwithstanding any other requirement of 14 CFR Part 43, for any engine granted an exemption pursuant to any applicable provision of 40 CFR § 87.7(a) (1), (a) (4), (b), (c), or (d), an indication of the type of exemption and the reason for the grant must be noted in the permanent powerplant record, that accompanies the engine, at the time of manufacture of the engine.

(d) On or after January 1, 1984, notwithstanding any other requirement of 14 CFR Part 43, for any engine with a rated thrust in excess of 26.7 kilonewtons which does not comply with the hydrocarbon emissions standard of 40 CFR Part 87, the statement "May not be used as a commercial aircraft engine" must be noted in the permanent powerplant record, that accompanies the engine, at the time of manufacture of the engine.

(e) On or after January 1, 1984, notwithstanding any other requirement of 14 CFR Part 43, for any aircraft assembled with an engine that has been granted an exemption pursuant to 40 CFR § 87.7(a) (1), the notation "the aircraft may not be operated within the United States", or an equivalent notation approved by the Administrator of the FAA, must be inserted in the aircraft logbook, or alternate equivalent document, at the time of installation of the engine.

Sec. 21 Standard airworthiness certificates

Notwithstanding Part 21 of the Federal Aviation Regulations, and irrespective of the date of application, no standard airworthiness certificate is issued, on and after the dates specified in paragraphs (a) through (e) of this section, for the airplanes specified therein, unless:

(a) For airplanes powered by engines of Class TP, Class TF, Class T3, Class T8, or Class TSS the airframe or engine complies with the fuel venting emissions requirement and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974, and January 1, 1975;]

[(b) For airplanes powered by engines of Class T8, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974;

(c) For airplanes powered by engines of Class TF that have a rated power of 29,000 pounds thrust or greater, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1976;

(d) For airplanes powered by engines of Class T3, each engine manufactured on or after January 1, 1978, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1978; and

(e) For airplanes powered by engines of Class TP, Class TF, Class T3, Class T8, and Class TSS—each engine manufactured on or after January 1, 1984, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that apply beginning January 1, 1984.

Sec. 25 Operation

On and after the dates specified in paragraphs (a) through (e) of this section, no person may, within the United States, operate a airplane specified in those paragraphs unless:

(a) For airplanes powered by engines of Class TP, Class TF, Class T3, Class T8, or Class TSS, the airframe or the engine complies with the fuel venting emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974, and January 1, 1975;

(b) For airplanes powered by engines of Class T8, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on February 1, 1974;

(c) For airplanes powered by engines of Class TF that have a rated power of 29,000 pounds thrust or greater, each engine complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1976;

(d) For airplanes powered by engines of Class T3, each engine manufactured on or after January 1, 1978, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that became effective on January 1, 1978; and

(e) For airplanes powered by engines of Class TP, Class TF, Class T3, Class T8, and Class TSS—each engine manufactured on or after January 1, 1984, complies with the exhaust emissions requirements and related test procedures of 40 CFR Part 87 that apply beginning January 1, 1984.]

[illegible] test procedures [illegible]

[illegible] beginning January 1, 1984.

[illegible] original FAA approval for installation of an engine on an airplane [illegible]

[illegible] Administrator of the FAA, that [illegible] with applicable provisions of 40 CFR Part 87. [illegible]

[illegible]

Sec. 3. [illegible]

[illegible]

Special Federal Aviation Regulation 21

Southern Rhodesia—Aviation Sanctions

Adopted: September 10, 1968 Effective: September 18, 1968

(Published in 33 FR 14103, September 18, 1968)

The purpose of this special regulation is to prohibit: (1) the carriage on aircraft registered under United States laws, or under charter to any person subject to United States jurisdiction, of certain commodities or products either originating in Southern Rhodesia except for licensed items, or any commodity or product, consigned to anyone for business carried on in or operated from that country, except licensed items; and (2) the operation of any aircraft by a United States air carrier, or operation by any person of any aircraft owned or chartered by any person subject to United States jurisdiction, to or from Southern Rhodesia or in coordination with an airline company constituted, or aircraft registered, in that country.

This regulation implements Executive Order 11419, dated July 29, 1968 (33 F.R. 10837), that delegated to the Secretary of Transportation the function and responsibility of enforcement relating to the operation of air carriers and aircraft and the carriage on aircraft of any commodities or products the carriage of which is prohibited by section 1 of Executive Order No. 11322 of January 5, 1967. The Secretary of Transportation has redelegated that function and responsibility to the Administrator (33 F.R. 12963).

Because of the emergency nature of this matter, I find that notice and public procedure on this special regulation would be impracticable and that it may be made effective on less than 30 days' notice.

In consideration of the foregoing, Special Federal Aviation Regulation 21 is hereby adopted to become effective September 18, 1968.

This Special Federal Aviation Regulation is issued under the authority of E.O. 11322, January 5, 1967; E.O. 11419, July 29, 1968; sec. 5, 59 Stat. 620, sec. 3, 63 Stat. 735, 22 U.S.C. 287c.

NOTE.—The reporting and recordkeeping requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

Special Federal Aviation Regulation 21-1

Southern Rhodesia—Aviation Sanctions

Adopted: January 6, 1970 Effective: January 14, 1970

(Published in 35 FR 529, January 15, 1970)

The purpose of this amendment to Special Federal Aviation Regulation No. 21 is to clarify the provision prohibiting operation of aircraft in coordination with any airline company constitued, or aircraft registered, in Southern Rhodesia.

It appears that the prohibitions of this regulation may be construed as going beyond the intent of the Executive Order it implements (E.O. 11419 dated July 29, 1968 (33 F.R. 10837)). This portion of the regulation is therefore clarified to conform with the intent of E.O. 11419 that United States air carriers are not prohibited from operating in coordination with other air carriers, except one constituted in Southern Rhodesia. This amendment has been coordinated with the Secretary of State before issuance.

Since this amendment is only clarifying, I find that notice and public procedure are unnecessary and that it may be made effective on less than 30 days' notice.

In consideration of the foregoing, subparagraph (c)(2) of section 2 of Special Federal Aviation Regulation 21 is amended, effective January 14, 1970.

This amendment is issued under the authority of E.O. 11322, January 5, 1967; E.O. 11419, July 29, 1968; sec. 5, 59 Stat. 620, sec. 3, 63 Stat. 735, 22 U.S.C. sec. 287c.

Special Federal Aviation Regulation 21-2
Southern Rhodesia—Aviation Sanctions

Adopted: December 27, 1979 **Effective: January 7, 1980**

(Published in 45 FR 1414, January 7, 1980)

SUMMARY: This action terminates the prohibition of aviation operations and carriage of commodities and products to and from Southern Rhodesia. This action is required by Executive Order No. 12183.

FOR FURTHER INFORMATION CONTACT:

Mr. Jonathan Howe, Deputy Chief Counsel, Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591, Telephone (202) 426-3775.

SUPPLEMENTARY INFORMATION:

History

Special Federal Aviation Regulation No. 21 was issued by the Administrator on September 10, 1968. That regulation implemented Executive Order No. 11419, dated July 29, 1968 (33 FR 10837), which delegated to the Secretary of Transportation the function and responsibility of enforcement of sanctions against Southern Rhodesia relating to the operation of air carriers and aircraft and the carriage on aircraft of any commodities or products the carriage of which was prohibited by Section 1 of Executive Order No. 11419 or by Section 1 of Executive Order No. 11322, dated January 5, 1967 (32 FR 119).

Specifically, Special Federal Aviation Regulation No. 21 prohibited: (1) the carriage, on aircraft registered under U.S. laws or under charter to any person subject to U.S. jurisdiction, of certain commodities or products either originating in Southern Rhodesia, except for licensed items, or any commodity or product, consigned to anyone for business carried on in or operated from that country, except for licensed items; and (2) the operation of any aircraft by any person subject to U.S. jurisdiction, to or from Southern Rhodesia or in coordination with an airline company constituted, or aircraft registered, in that country.

Amendment of Regulation

This regulation implements Executive Order No. 12183, dated December 16, 1979, which revoked Executive Orders 11322, 11419, and 11978 with respect to transactions occurring after the effective date of Executive Order No. 12183, and which required the Secretary of Transportation to implement the Order. The Secretary of Transportation has redelegated that function and responsibility to the Administrator. In accordance with Executive Order No. 12183, this action amends Special Federal Aviation Regulation No. 21 by revoking all the prohibitions on transactions with Rhodesia. The Federal Aviation Administration retains the authority to investigate any violation of any provision of Special Federal Aviation Regulation No. 21 that occurred prior to the effective date of Executive Order No. 12183, and to institute appropriate enforcement measures.

In keeping with the retention of FAA investigatory and enforcement authority, the record keeping, reporting, and penalty provisions of Special Federal Aviation Regulation No. 21 have not been revoked. However, the record keeping and reporting provisions have been revised so as to limit their application to transactions occurring prior to December 16, 1979, the effective date of Executive Order No. 12183.

Since the Executive Order implemented by Special Federal Aviation Regulation No. 21 has been revoked, notice and comment on its amendment are unnecessary and good cause exists for making this amendment effective in less than 30 days.

AMENDMENT OF SPECIAL FEDERAL AVIATION REGULATION NO. 21

Accordingly, Special Federal Aviation Regulation No. 21 is hereby amended by revoking §§ 1, 2, and 3 and by revising §§ 4 and 5. (E.O. 12183, December 16, 1979, Sec. 5, Stat. 620, as amended, 22 U.S.C. 287c).

(NOTE: The Federal Aviation Administration has determined that this document involves a regulation which is not significant under Executive Order No. 12044 as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Special Federal Aviation Regulation 21

Southern Rhodesia—Aviation Sanctions

1. [Revoked]

2. [Revoked]

3. [Revoked]

4. *Records.* (a) Each person who engaged in any carriage or operation subject to Special Federal Aviation Regulation No. 21 before December 16, 1979, shall make a full and accurate record of each carriage or operation of this kind in which he engaged, regardless of whether it was effected pursuant to license or otherwise, and shall keep the record available for at least two years after the date of carriage or operation.

(b) This section does not require any particular method of recordkeeping and does not require any change in the system of records customarily kept by the person concerned, so long as the records supply an adequate basis for examination. Records may be kept in the form of microfilm or other photographic copies.

5. *Reports.* Each person who participated in any carriage or operation covered by Special Federal Aviation Regulation No. 21 before December 16, 1979, shall submit such reports on his activities under that special regulation as the Administrator may require.

6. *Penalties.* (a) Attention is directed to section 5(b) of the United Nations Participation Act of 1945 (22 U.S.C. sec. 287c), which provides in part:

> "Any person who willfully violates or evades or attempts to violate or evade any order, rule, or regulation issued by the President pursuant to subsection (a) of this section shall, upon conviction be fined not more than $10,000, or, if a natural person, be imprisoned for not more than 10 years, or both, and the officer, director, or agent of any corporation who knowingly participates in such violation or evasion shall be punished by a like fine, imprisonment, or both, and any property, funds, securities, papers, or other articles or documents, or any vessel, together with her tackle, apparel, furniture, and equipment, or vehicle, or aircraft, concerned in such violation shall be forfeited to the United States." (Dec. 20, 1945, ch. 583, sec. 5, 59 Stat. 620; Oct. 10, 1949, ch. 660, sec. 3, 63 Stat. 735).

This section of the United Nations Participation Act of 1945 is applicable to violations of any provisions of this special regulation and to violations of the provisions of any ruling, regulation, order, direction, or instruction issued pursuant to this special regulation under section 5 of the United Nations Participation Act, E.O. 11322, and E.O. 11419.

(b) Attention is also directed to 18 U.S.C. 1001 which provides:

> "Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisioned not more than 5 years, or both.

Special Federal Aviation Regulation 29

FAA Study of Limited IFR Operations in Rotorcraft

Adopted: January 3, 1975 **Effective: January 14, 1975**

(Published in 40 FR 2420, January 13, 1975)

The purpose of this Special Federal Aviation Regulation is to provide for the issue by the Administrator of approvals for limited operations under instrument flight rules (IFR) of certain transport category rotorcraft that are limited by their type certificates to operations under visual flight rules (VFR). Such operations are necessary to permit the collection of operational data in connection with an FAA study of limited rotorcraft operations in IFR conditions.

Under the current Federal Aviation Regulations a transport category rotorcraft is certificated for VFR operation only unless it has been shown that the rotorcraft fully complies with all of the airworthiness requirements for IFR operations. The FAA believes that certain IFR operations can safely be conducted over low density routes, in off-airways operations, and in uncontrolled airspace with transport category rotorcraft that do not meet all of the present flight characteristics requirements. In this connection the FAA is conducting a study to determine whether a "limited" IFR category should be established for these rotorcraft, including flight characteristics and equipment requirements, operating procedures and limitations, flight crew requirements, and training requirements. After this study has been completed, rulemaking action may be initiated to amend the Federal Aviation Regulations to permit limited IRF operations with transport category rotorcraft that do not meet all of the present airworthiness requirements of Part 29 for unlimited operation under IFR.

Some data has already been collected from an operator of specially equipped Bell Model 212 helicopters that are flown by flight crews trained in operating those rotorcraft in IFR conditions in the Gulf of Mexico. These operations have been conducted under the authority of an exemption from the Federal Aviation Regulations. Based on information and data collected during these operations, the FAA believes the study should be expanded to include operations in other geographic areas. The FAA has also determined that any operator of transport category rotorcraft, whose aircraft equipment, procedures, and area of operation ensure a level of safety under limited IFR operations equivalent to that provided by the present requirements of Part 29, should be allowed to participate in this study. This Special Federal Aviation Regulation will allow this participation, which the FAA has determined will be in the public interest and will not compromise safety.

Under this Special Federal Aviation Regulation, the operator of a rotorcraft that is not otherwise certificated for IFR operations may conduct an approved limited IFR operation in the rotorcraft when an approval for the operation has been issued by the Administrator. Factors that will be considered by the Administrator in issuing an approval include:

1. The inherent characteristics of the rotorcraft to be operated, including flight characteristics, performance, approach speed and ability to terminate an approach.
2. The duality, redundancy, and independence of equipment in the rotorcraft, including controls, flight instruments, electrical, communication, and navigation systems, and power and fuel systems.
3. The operator's training program, with special emphasis on crew coordination during IFR operations.
4. The experience of the pilots of the rotorcraft in the environment and weather conditions in which IFR operations are to be conducted.
5. The size and relative simplicity of the area in which IFR operations are to be conducted and the distance flown on each route segment.

This Special Federal Aviation Regulation also provides as part of the study that the FAA may approve the carriage in IFR operations of less than the 45 minutes of additional fuel reserve required by § 91.23(c). In pertinent part, § 91.23 requires that, in IFR conditions, the rotorcraft must have enough fuel to complete the contemplated flight, to fly from the airport of intended landing to the alternate airport, and fly thereafter for 45 minutes at normal cruising speed. This Special Federal Aviation Regulation permits the approval of less than 45 minutes, but not less than 30 minutes, of additional fuel reserve. A factor considered in granting this approval will be the environment in which the rotorcraft is to be operated.

In view of the fact that this amendment temporarily relieves a restriction in connection with operations conducted as part of an FAA study, and since there is an immediate need for the data to be derived from the study. I find that notice and public procedure thereon are impractical and unnecessary, and good cause exists for making this amendment effective in less than 30 days.

(Sections 313(a), 601(a), and 603 of the Federal Aviation Act of 1958; 49 U.S.C. 1354(a), 1421(a), and 1423. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c).)

In consideration of the foregoing, Special Federal Aviation Regulation 29 is adopted, effective January 14, 1975.

Special Federal Aviation Regulation 29–1

FAA Study of Limited IFR Operations in Rotorcraft

Adopted: December 30, 1975 Effective: December 31, 1975

(Published in 41 FR 1060, January 6, 1976)

The purpose of this Special Federal Aviation Regulation is to extend the expiration date of Special Federal Aviation Regulation No. 29 (SFAR No. 29) to provide for further time for the collection of operational data in connection with an FAA study of limited rotorcraft operations in IFR conditions. SRAR No. 29 was issued for a period of one year to provide for the issue by the Administrator of approvals for limited operations under instrument flight rules (IFR) of certain transport category rotorcraft that are limited by their type certificates to operations under visual flight rules (VFR).

Under the current Federal Aviation Regulations a transport category rotorcraft is certificated for VFR operation only unless it has been shown that the rotorcraft fully complies with all of the airworthiness requirements for IFR operations. The FAA believes that certain IFR operations can safely be conducted over low density routes, in off-airways operations, and in uncontrolled airspace with transport category rotorcraft that do not meet all of the present flight characteristics requirements. As stated in the preamble to SFAR No. 29, the FAA is conducting a study to determine whether a "limited" IFR category should be established for these rotorcraft, including flight characteristics and equipment requirements, operating procedures and limitations, flight crew requirements, and training requirements.

Before the issuance of SFAR No. 29 the FAA had already collected data from an operator of specially equipped Bell Model 212 helicopters that are flown by flight crews trained in operating those rotorcraft in IFR conditions in the Gulf of Mexico. Those operations were conducted under the authority of an exemption from the Federal Aviation Regulations. Based on information and data collected during those operations, the FAA decided the study should be expanded to include operations in other geographic areas. In this connection, the FAA determined that it would be in the public interest and would not compromise safety to allow any operator of transport category rotorcraft to participate in the study, if its aircraft equipment, procedures, and area of operation ensure a level of safety under limited IFR operations equivalent to that provided by the present requirements of Part 29.

Although the FAA expected a number of helicopter operators to participate in the study, during the first six months after the effective date of SFAR No. 29, no additional operators expressed an interest in participating in the study. A number of operators have indicated to the FAA a belief that the one-year effective period of SFAR No. 29

would not enable them to complete the actions necessary for limited helicopter IRF authorization, or to defray the necessary expenses through additional revenues.

Moreover, a number of navigational systems are under development and not yet full operational that the FAA anticipates would be used in rotorcraft engaged in limited IFR operations. Information on operations using this equipment will be important to the FAA's decision on whether to initiate rulemaking.

In view of the foregoing, the FAA has determined that it is necessary to extend its study for an additional three year period to provide sufficient data upon which to base a decision whether to initiate rulemaking action to amend the Federal Aviation Regulations to permit limited IFR operations with transport category rotorcraft that do not meet all of the present airworthiness requirements of Part 29 for unlimited operation under IFR. Accordingly, this SFAR is being issued for a period of three years.

It should be noted that this SFAR, as did SFAR No. 29, provides as part of the study that the FAA may approve the carriage in IFR operations of less than the 45 minutes of additional fuel reserve required by § 91.23(c). In pertinent part, § 91.23 requires that, in IFR conditions, the rotorcraft must have enough fuel to complete the contemplated flight, to fly from the airport of intended landing to the alternate airport, and fly thereafter for 45 minutes at normal cruising speed. This Special Federal Aviation Regulation permits the approval of less than 45 minutes, but not less than 30 minutes, of additional fuel reserve. A factor considered in granting this approval will be the environment in which the rotorcraft is to be operated.

In view of the fact that this amendment temporarily relieves a restriction in connection with operations conducted as part of an FAA study, and since there is an immediate need for the data to be derived from the study, I find that notice and public procedure thereon are impractical and unnecessary, and good cause exists for making this amendment effective in less than 30 days.

(Sections 313(a), 601(a), and 603 of the Federal Aviation Act of 1958; 49 U.S.C. 1354d(a), 1421(a), and 1423. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c).)

In consideration of the foregoing, Special Federal Aviation Regulation 29-1 is adopted, effective December 31, 1975.

Special Federal Aviation Regulation 29-2

FAA Study of Limited IFR Operations in Rotorcraft

Adopted: January 3, 1979 **Effective: January 3, 1979**

(Published in 44 F.R. 2382, January 11, 1979)

SUMMARY: This amendment reissues a special regulation which allows for limited operations under instrument flight rules (IFR) of certain transport category rotorcraft that are limited by their type certificates to operations under visual flight rules (VFR). It also amends the provisions of the special regulation by including Part 27 rotorcraft operations and deleting the airspace restrictions. The amendment is necessary to provide time for further study to determine whether the airworthiness requirements should be revised.

FOR FURTHER INFORMATION CONTACT:

Mr. Donald A. Schroeder, Safety Regulations Division, Flight Standards Service, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591; Telephone: 202-755-8715.

SUPPLEMENTAL INFORMATION: Under Part 27 or 29 of the Federal Aviation Regulations (FAR) a rotorcraft is certificated for VFR operation only, unless it has been shown that the rotorcraft fully complies with all of the airworthiness requirements for IFR operations. The FAA believes that certain IFR operations can be safely conducted with rotorcraft that do not meet all of the present flight characteristic requirements. Special Federal Aviation Regulation (SFAR) No. 29 was adopted to provide for the issue by the Administrator of approvals for this relief on an interim basis pending the conclusion of a study to determine whether a "limited" IFR category should be established for these rotorcraft, including flight characteristics and equipment requirements, operating procedures and limitations, flight crew requirements, and training requirements. The expiration date of SFAR No. 29 as amended by SFAR No. 29-1 (41 FR 1060), is December 31, 1978.

The FAA has established a Rotorcraft Regulatory Review Program which will involve a comprehensive review and upgrading of rules regarding rotorcraft airworthiness standards and operating requirements. This program will consider the development of IFR airworthiness standards for rotorcraft certification in Parts 27 and 29 of the FAR. This program will not be concluded by the December 31, 1978, termination date of SFAR No. 29.

The FAA has been requested by the Helicopter Association of America on behalf of their membership to consider including certain helicopters certificated to the airworthiness standards of Part 27 to allow IFR operations similar to those conducted under SFAR 29. In addition, it was requested that the airspace restrictions be deleted. Based upon the study results to date and the need to collect additional data, the FAA has determined that the requirements for specific approval of IFR routes and area of operation could be deleted without jeopardizing safety. The present IFR study provisions of SFAR 29 have not included Part 27 helicopters which are being used in pilot training programs leading towards instrument ratings in rotorcraft-helicopters. In addition, a number of these helicopters, operating VFR, presently require, under the interim standards for IFR certification, stringent and costly stability augmentation devices to be added to the flight control system before operating in instrument meteorological conditions. The need exists to expand the IFR study to include certain helicopters certificated to the airworthiness standards of Part 27 and evaluate the need for stability devices prior to imposing a large financial burden upon the industry.

In a continued effort to expand the data base of operational information, the FAA has, therefore, determined it advisable to amend SFAR 29 to delete the airspace restrictions and to include certain helicopters certificated to the airworthiness standards of Part 27.

If SFAR No. 29 were not to continue in effect until the completion of the rulemaking action generated by the Rotorcraft Regulatory Review Program, an undue burden could be placed on certain operators of helicopters meeting the criteria specified in SFAR No. 29 because it would prohibit IFR operations with those helicopters which might be allowed when the Rotorcraft Regulatory Review Program is completed. Thus, the FAA believes that it is in the public interest to allow IFR operations with certain rotorcraft that do not meet all of the present requirements of Parts 21, 27, 29, and 91 of the FAR pending a determination of whether or not new standards should be developed.

The expansion and effectivity of SFAR No. 29 to December 31, 1980, should provide the FAA sufficient time to determine what regulatory changes are necessary.

ADOPTION OF THE AMENDMENT

Since this amendment temporarily relieves a restriction in connection with operations conducted as part of an FAA study and imposes no additional burden on any person, I find that notice and public procedure are unnecessary and that good cause exists for making this amendment effective in less than 30 days.

Accordingly, Special Federal Aviation Regulation No. 29, as amended by SFAR No. 29-1, is reissued, effective January 3, 1979.

Sections 313(a), 601(a), and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421(a), and 1423) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).)

The Federal Aviation Administration has determined that this document is not significant in accordance with the criteria required by Executive Order 12044, and set forth in the proposed "Department of Transportation Regulatory Policies and Procedures" published in the FEDERAL REGISTER June 1, 1978 (43 FR 23925).

Special Federal Aviation Regulation 29-3

Limited IFR Operations in Rotorcraft

Adopted: October 21, 1980 **Effective: January 1, 1981**

(Published in 45 FR 71919, October 30, 1980)

SUMMARY: This amendment extends the effectivity of Special Federal Aviation Regulation No. 29-2 which allows for limited operations under instrument flight rules (IFR) for certain normal and transport category rotorcraft that are limited by their type certificates to operations under visual flight rules (VFR). The extension is necessary to provide time for further study to determine whether the airworthiness requirements should be revised.

FOR FURTHER INFORMATION CONTACT: Mr. Roger E. Riviere, Regulatory Review Branch (AVS-22), Safety Regulations Staff, Associate Administrator for Aviation Standards, Federal Aviation Administration, 800 Independence Ave. S.W., Washington, D.C. 20591, telephone (202) 755-8714.

SUPPLEMENTAL INFORMATION: Under Part 27 or 29 of the Federal Aviation Regulations (FAR) a rotorcraft is certificated for visual flight rules (VFR) operation only, unless it is shown that the rotorcraft fully complies with all of the airworthiness requirements for IFR operations. Certain IFR operations can be safely conducted with rotorcraft that do not meet all of the present flight characteristic requirements. Special Federal Aviation Regulation (SFAR) No. 29 was adopted to allow the Administrator to issue approvals for these operations on an interim basis pending the conclusion of a study to determine whether a "limited" IFR category should be established for these rotorcraft, including flight characteristics and equipment requirements, operating procedures and limitations, flightcrew requirements, and training requirements. SFAR No. 29, as amended by SFAR No. 29-2 (44 FR 2362), expires December 31, 1980.

The FAA has established a Rotorcraft Regulatory Review Program which involves a comprehensive review and upgrading of rules regarding rotorcraft airworthiness standards and operating requirements. This program will consider the development of IFR airworthiness standards for rotorcraft certification in Parts 27 and 29 of the FAR. It is the intent of the FAA to rescind this SFAR upon adoption of the new rotorcraft IFR certification standards in Parts 27 and 29 as part of the Rotorcraft Regulatory Review Program. This program will not be concluded by the December 31, 1980, termination date of SFAR No. 29 as amended. If the SFAR expires before the completion of the rulemaking action generated by the program, an undue burden could be placed on certain operators of helicopters meeting the criteria specified in the SFAR because it would prohibit IFR operations with those helicopters which might be allowed when the Rotorcraft Regulatory Review Program is completed. This is consistent with Executive Order 12044 issued by President Carter in that it minimizes compliance costs and burdens on the public. Results have not shown any adverse safety effect during the time that it was in effect and none are expected in the future should this SFAR be extended. Thus, the FAA has determined that it is in the public interest to extend the effectivity of SFAR 29, as amended, pending a determination of whether or not new standards should be developed.

ADOPTION OF THE AMENDMENT

Since this amendment temporarily relieves a restriction in connection with operations conducted as part of an FAA study and imposes no additional burden on any person, I find that notice and public procedure are unnecessary.

Accordingly, Special Federal Aviation Regulation No. 29, as amended by SFAR No. 29–2, is reissued, effective January 1, 1981.

Sections 313(a), 601(a), and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421(a), and 1423) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).)

The Federal Aviation Administration has determined that this document is not significant in accordance with the criteria required by Executive Order 12044, as implemented by the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Special Federal Aviation Regulation 29–4
Limited IFR Operations of Rotorcraft

Adopted: December 28, 1982 **Effective: January 1, 1983**

(Published in 48 FR 631, January 6, 1983)

SUMMARY: This amendment extends the effectivity of Special Federal Aviation Regulation (SFAR) No. 29–3, which allows limited operations under instrument flight rules (IFR) of certain normal and transport category rotorcraft that are limited by their type certificates to operations under visual flight rules (VFR). The extension is necessary to prevent imposing any economic burden upon those operators already authorized, equipped, and qualified to conduct operations under SFAR No. 29, which would occur if SFAR 29–3 were permitted to terminate before Amendment No. 1 of the Rotorcraft Regulatory Review Program is issued and effective.

FOR FURTHER INFORMATION CONTACT: Mike Sacrey or Win Karish; Operations Branch (AFO–820); General Aviation & Commercial Division; Office of Flight Operations; Federal Aviation Administration; 800 Independence Ave., SW.; Washington, D.C. 20591; telephone (202) 426–8194.

SUPPLEMENTARY INFORMATION:

Background

Under Part 27 or Part 29 of the Federal Aviation Regulations (FAR), a rotorcraft is certificated for VFR operation only, unless it has been shown that the rotorcraft fully complies with all of the airworthiness requirements for instrument flight rules (IFR) operations. Since certain IFR operations can be safely conducted with rotorcraft that do not meet all of the present flight characteristic requirements, SFAR No. 29 was adopted by the Administrator on January 3, 1975 (40 FR 2420; January 13, 1975). SFAR No. 29 allowed the Administrator to issue approvals for such operators, on an interim basis, pending the conclusion of a study to determine whether a "limited" IFR category should be established for these rotorcraft, including flight characteristics and equipment requirements, operating procedures and limitations, flightcrew requirements, and training requirements. The expiration date of SFAR No. 29, as amended by SFAR No. 29-3 (45 FR 71919; October 30, 1980), is December 31, 1982.

The FAA has established a Rotorcraft Regulatory Review Program which will involve a comprehensive review and upgrading of requirements. This program will consider the development of IFR airworthiness standards for rotorcraft certification in Parts 27 and 29 of the FAR. It will not be concluded by the December 31, 1982, termination date of SFAR No. 29-3.

Discussion

If SFAR No. 29 were to expire before completing the rulemaking action generated by the Rotorcraft Regulatory Review Program, there would be no regulatory basis to allow continued IFR rotorcraft operations, thereby creating an undue burden for those operators of helicopters meeting the criteria specified in SFAR No. 29.

Pending the issuance and effectivity of new standards to be established by Amendment No. 1 of the Rotorcraft Regulatory Review Program, the FAA believes that it is in the public interest to allow continued IFR operations with certain rotorcraft that do not meet all of the present requirements of Parts 21, 27, 29, and 91 of the FAR. With the issuance of SFAR No. 29-4, operators may continue to apply for SFAR 29 approvals until Amendment No. 1 of the Rotorcraft Regulatory Review Program (Amendment No. 1) is effective. After Amendment No. 1 is effective, all applicants for certification of IFR rotorcraft operations will have to comply with the applicable provisions of that amendment. When Amendment No. 1 becomes effective, SFAR No. 29-4 (and approvals issued under SFAR Nos. 29 through 29-4) will remain effective for operators holding approvals obtained before the effective date of Amendment No. 1. SFAR 29-4 will terminate when all approvals issued under SFAR Nos. 29 through 29-4 are surrendered, revoked, or otherwise terminated.

Need for Immediate Adoption

Since this amendment temporarily extends the effectivity of a rule which permits continued IFR rotorcraft operations by operators equipped and qualified to comply with Special Federal Aviation Regulation No. 29 and therefore imposes no additional burden on any person, I find that notice and public procedure are unnecessary and that good cause exists for making this amendment effective in less than 30 days.

THE AMENDMENT

Accordingly, Special Federal Aviation Regulation No. 29, as amended by Special Federal Aviation Regulation No. 29-3 (14 CFR Parts 21, 27, 29, and 91), is reissued and amended, effective January 1, 1983.

(Sections 313(a), 601(a), and 603 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421(a), and 1423) and section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)))

NOTE: Since this document only extends the effectivity of a current regulation and does not impose a burden on the public or aviation industry, the FAA has determined that this document involves a regulation which is not a major rule under Executive Order 12291, is not a significant rule under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979), and does not warrant preparing a regulatory evaluation because the anticipated impact is minimal. For the same reason, I certify that this amendment will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Special Federal Aviation Regulation 29

FAA Study of Limited IFR Operations in Rotorcraft

1. Contrary provisions of Parts 21, 27, and 29 of the Federal Aviation Regulations notwithstanding, an operator of a rotorcraft that is not otherwise certificated for IFR operations may conduct an approved limited IFR operation in the rotorcraft when—

(a) FAA approval for the operation has been issued under paragraph 2 of this SFAR;

(b) The operator complies with all conditions and limitations established by this SFAR and the approval; and

(c) A copy of the approval and this SFAR are set forth as a supplement to the Rotorcraft Flight Manual.

2. FAA approval for the operation of a rotorcraft in limited IFR operations may be issued when the following conditions are met:

(a) The operation is approved as part of the FAA study of limited rotorcraft IFR operations.

(b) Specific FAA approval has been obtained for the following:

(i) The rotorcraft (make, model, and serial number).

(ii) The flightcrew.

(iii) The procedures to be followed in the operation of the rotorcraft under IFR and the equipment that must be operable during such operations.

(c) The conditions and limitations necessary for the safe operation of the rotorcraft in limited IFR operations have been established, approved, and incorporated in the operating limitations section of the Rotorcraft Flight Manual.

3. An approval issued under paragraph 2 of this Special Federal Aviation Regulation and the change to this Rotorcraft Flight Manual specified in paragraph 2(c) of this Special Federal Aviation Regulation constitute a supplemental type certificate for each rotorcraft approved under paragraph 2 of this SFAR. The supplemental type certificate will remain in effect until the approval to operate issued under the Special Federal Aviation Regulation is surrendered, revoked, or otherwise terminated.

4. Notwithstanding § 91.23(a)(3) of the Federal Aviation Regulations, a person may operate a rotorcraft in a limited IFR operation approved under paragraph 2(a) of this Special Federal Aviation Regulation with enough fuel to fly, after reaching the alternate airport, for not less than 30 minutes, when that period of time has been approved.

5. Expiration.

(a) New applications for limited IFR rotorcraft operations under SFAR No. 29 may be submitted for approval until, but not including, the effective date of Amendment No. 1 of the Rotorcraft Regulatory Review Program. On and after the effective date of Amendment No. 1 of the Rotorcraft Regulatory Review Program, all applicants for certification of IFR rotorcraft operations must comply with the applicable provisions of the Federal Aviation Regulations.

(b) This Special Federal Aviation Regulation will terminate when all approvals issued under Special Federal Aviation Regulation No. 29 are surrendered, revoked, or otherwise terminated.

Special Federal Aviation Regulation 41

Airworthiness Standards: Reciprocating and Turbopropeller-Powered Small Multiengine Airplanes—Increase in Approved Takeoff Weights and Passenger Seating Capacities

Adopted: September 7, 1979 **Effective: October 17, 1979**

(Published in 44 FR 53723, September 17, 1979)

SUMMARY: This amendment adopts a new Special Federal Aviation Regulation (SFAR) which prescribes additional airworthiness standards applicable to existing propeller driven multiengine small airplanes to allow their type and airworthiness recertification at weights in excess of the limitation of 12,500 pounds maximum certificated takeoff weight, or with an increase in the number of passenger seats, or both. The rules applicable to air taxi and commercial operators (Part 135) are amended to allow the operation of airplanes certificated under the SFAR. In addition, the operating rules (Parts 91 and 135) are amended to require that airplanes certificated under the SFAR at weights in excess of 12,500 pounds meet updated interior material flammability requirements within one year of initial airworthiness certification. These amendments are intended to allow the design capabilities of certain existing small airplanes to be more fully utilized. They are also designed to increase aircraft availability for the commuter market that is burgeoning since enactment of the Airline Deregulation Act of 1978.

FOR FURTHER INFORMATION CONTACT:

Raymond E. Ramakis, Safety Regulations Staff (AVS-24), Federal Aviation Administration, 800 Independence Avenue, S.W. Washington, D.C. 20591 Telephone (202) 755-8716.

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ADOPTION OF THE AMENDMENT

Accordingly, the Federal Aviation Regulations (14 CFR Chapter I) are amended, effective October 17, 1979.

(Secs. 313(a), 601, 603, and 604, Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424); Sec. 6(c))).

NOTE—The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by writing to Raymond E. Ramakis, Safety Regulations Staff (AVS-24), Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591.

NOTE: The complete preamble to SFAR 41 is contained in Change 35 in Amendment 91-159.

Special Federal Aviation Regulation 41A

Increase in Approved Takeoff Weights and Passenger Seating Capacities: Correction

Adopted: April 7, 1980 **Effective: April 14, 1980**

(Published in 45 FR 25046, April 14, 1980)

SUMMARY: This action makes editorial corrections to Special Federal Aviation Regulation (SFAR) 41 adopted on September 7, 1979. The SFAR prescribes additional airworthiness requirements applicable to certain existing multiengine small airplanes to allow an increase in approved takeoff weights and passenger seating capacities.

FOR FURTHER INFORMATION CONTACT:

Eli S. Newberger, Safety Regulations Staff, AVS-24, Federal Aviation Administration, 800 Independence Ave., S.W., Washington, D.C. 20591, Telephone (202) 755-8716.

SUPPLEMENTARY INFORMATION:

This amendment of SFAR 41 (44 FR 53723, September 17, 1979) is editorial in nature to provide an omitted date, change an incorrectly stated date, and delete a regulatory reference listed in error.

As indicated in the preamble, SFAR 41 is applicable to existing propeller-driven multiengine small airplanes. The existing airplanes eligible for amended or supplemental type certificates are those type certificated prior to the effective date of the SFAR; i.e., October 17, 1979. This amendment provides the omitted date in paragraphs 1.(a) and 1.(b).

Paragraph 5.(b)(3) of the SFAR inadvertently cites the certification cutoff date of the given class of airplanes as July 1, 1970. Since this paragraph parallels § 135.169(b)(3), for consistency, the date is corrected to July 19, 1970.

Of the three sections of Appendix A, Part 135, referenced in paragraph 5.(c) of the SFAR, section 19.(b)(3) does not relate to landing requirements and was inadvertently included. Paragraph 5.(c) and the corresponding preamble discussion are amended by deleting the erroneous reference.

This amendment corrects the editorial errors as noted and good cause exists for making the amendment effective upon publication in the FEDERAL REGISTER [April 14, 1980].

ADOPTION OF AMENDMENT

Accordingly, the preamble of SFAR 41 and the text of SFAR 41 of the Federal Aviation Regulations (14 CFR SFAR 41) are amended, effective April 14, 1980.

[Secs. 313(a), 601, 603, and 604, Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, and 1424); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).]

NOTE: The FAA has determined that this document involves a regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Special Federal Aviation Regulation 41B

Increase in Approved Takeoff Weights and Passenger Seating Capacities

Adopted: December 2, 1980 **Effective: December 8, 1980**

(Published in 45 FR 80872, December 8, 1980)

SUMMARY: This amendment specifies the additional requirements for airplane designs certificated under Special Federal Aviation Regulation No. 41 (SFAR 41) that are necessary to comply with the airworthiness standards of International Civil Aviation Organization (ICAO), Annex 8. Manufacturers or modifiers of these airplanes may voluntarily elect to comply with these additional requirements to facilitate international operations. SFAR 41 was issued on September 7, 1979, and amended on April 7, 1980, to clarify its applicability. SFAR 41 prescribes additional airworthiness standards applicable to existing propeller-driven multiengine small airplanes to allow their type and airworthiness certification at weights in excess of 12,500 pounds maximum certificated takeoff weight, or with an increase in the number of passenger seats, or both.

Comments must be received on or before March 9, 1981.

FOR FURTHER INFORMATION CONTACT:

Eli S. Newberger, Regulatory Projects Branch (AVS-24), Safety Regulations Staff, Associate Administrator for Aviation Standards, Federal Aviation Administration, 800 Independence Ave., S.W., Washington, D.C. 20591. Telephone (202) 755-8716.

ADDRESS: Comments on this amendment may be mailed in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rules Docket (AGC-204), Docket No. 18315, 800 Independence Avenue, SW., Washington, D.C. 20591; or delivered in duplicate to: Room 916, 800 Independence Avenue, SW., Washington, D.C. 20591. All comments must be marked: Docket No. 18315. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

SUPPLEMENTARY INFORMATION:

Background

SFAR 41 was issued to provide for increased availability and utility of existing small multiengine propeller-driven airplanes in U.S. domestic commuter service by permitting type and airworthiness certification at weights above the limitation of 12,500 pounds maximum certificated takeoff weight. The SFAR permits an increase in the maximum certificated takeoff weight above 12,500 pounds, or an increase in passenger seating, or both, provided the maximum zero fuel weight does not exceed 12,500 pounds. Aircraft eligible for compliance with the SFAR must have been certificated to Federal Aviation Regulations Part 23 (FAR 23) prior to October 17, 1979, and an application for certification to SFAR 41 for the airplane must be filed prior to October 17, 1981. The production of airplanes certificated above 12,500 pounds, however, will be limited to 10 years after the effective date of SFAR 41, that is, until October 17, 1989.

No limitation has been established for the operational life of individual aircraft that were manufactured in conformance to a design approved under SFAR 41 prior to October 17, 1989.

Discussion

Certification under SFAR 41, as that regulation is presently worded, requires an endorsement on the airworthiness certificate to indicate that the airplane at weights in excess of 5,700 kg (12,566 pounds) does not meet ICAO Annex 8, *"International Standards, Airworthiness of Aircraft, to the Convention on International Civil Aviation."* In the public rulemaking process followed before adoption of SFAR 41, technical differences were acknowledged to exist between SFAR 41 and ICAO Annex 8. After issuance of the SFAR, it was called to the FAA's attention that certain airplanes certificated to SFAR 41 could also be shown to comply with ICAO Annex 8. As written, however, SFAR 41 specifically requires all individual airworthiness certificates issued for aircraft type certificated under SFAR 41 to be specifically annotated otherwise. The purpose of this amendment is to eliminate this contradiction and allow those aircraft which do comply with ICAO Annex 8 to be free of statements to the contrary on their airworthiness certificates.

Article 33 of the Convention on International Civil Aviation (Chicago Convention) provides for the recognition of airworthiness certificates between contracting States when the airworthiness standards established by the Convention are met. The airworthiness standards established by the Convention are contained in ICAO Annex 8. Part III of ICAO Annex 8 sets forth objective standards applicable to airplanes of over 5,700 kg (12,566 pounds), maximum certificated takeoff weight intended for the carriage of passengers or cargo or mail in international air navigation. Noncompliance with these standards could seriously inhibit the international operations of affected airplanes.

The FAA, in the period since issuance of SFAR 41, has compared the airworthiness standards in Part III of ICAO Annex 8 with the airworthiness standards in FAR 23 plus SFAR 41. In this connection, the FAA has determined which specific FAR 25 airworthiness requirements must be met to ensure compliance with ICAO Annex 8, and they are listed in the body of the rule. It should be emphasized that the election to seek a more flexible international operations capability for airplanes already certificated to SFAR 41 by complying with these additional requirements is voluntary.

When an applicant elects to comply with the additional requirements of this amendment, the type certification basis statement on the type certificate data sheet or supplemental type certificate will indicate that the design meets the requirements of ICAO Annex 8. Aircraft covered under these certificates are excepted from the airworthiness certificate endorsement required by section 4(b) of SFAR 41. Applications for certification under SFAR 41 must be on file before October 17, 1981. However, applications for certification under the additional standards contained in this amendment may be made at any time for aircraft already certificated to SFAR 41. Since the additional standards of this amendment reflect specific standards of FAR 25 which may change after this amendment, the standards cited are those in effect on October 17, 1979, the effective date of SFAR 41.

Request For Comments

Interested persons are invited to submit comments on only this amendment. Communications should identify the docket number and be submitted in duplicate to the address specified above. All communications received on or before the closing date for comments will be considered by the Administrator. This amendment may be changed in the light of the comments received. All comments received will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons.

Notice and Public Procedure

The FAA recognizes that although the objective of SFAR 41 was met to increase the utilization of certain FAR 23 aircraft in U.S. domestic commuter service, difficulties may be encountered with the operation of such aircraft in foreign countries to the extent that the FAA precludes these aircraft from meeting the standard of ICAO Annex 8. In view of this, the FAA has determined those standards that will permit the voluntary compliance by persons seeking to undertake international operations with airplanes certificated under SFAR 41. Since this action is necessary to avoid imposing an undue burden on the international operations of these airplanes and since the FAA had no intention to preclude voluntary compliance with ICAO Annex 8 when SFAR 41 was issued, I find that notice and public procedure are impractical and contrary to the public interest and that good cause exists for making this amendment effective in less than 30 days. Accordingly, this amendment is effective on the date it is published in the *Federal Register* (45 FR 80972, 12/8/80).

ADOPTION OF AMENDMENT

In consideration of the foregoing, SFAR 41 of the Federal Aviation Regulations [14 CFR SFAR 41] is amended effective December 8, 1980.

[Sec. 313(a), 601, 603, 604, Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c))]

NOTE: The FAA has determined that this document involves an amendment which is not considered to be significant under the procedures and criteria prescribed by Executive Order 12044 as implemented by Department of Transportation Policies and Regulatory Procedures (44 FR 11034; February 26, 1979). A copy of the final evaluation prepared for this action is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified above under the caption "FOR FURTHER INFORMATION CONTACT".

This rule is a final order of the Administrator as defined by Section 1005 of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1485). As such, it is subject to review only by the courts of appeals of the United States or the United States Court of Appeals for the District of Columbia.

Special Federal Aviation Regulation 41C

Airworthiness Standards: Reciprocating and Turbopropeller-Powered Small Multiengine Airplanes: SFAR 41 Interim Standards

Adopted: July 21, 1982 **Effective: September 13, 1982**

(Published in 47 FR 35150, August 12, 1982)

SUMMARY: This amendment reinstates and extends the effectivity of Special Federal Aviation Regulation (SFAR) 41 which expired October 17, 1981, and amends the SFAR to: (1) Eliminate the 12,500-pound maximum zero fuel weight (MZFW) restriction; (2) limit the number of passenger seats to 19 for those small propeller-driven multiengine airplanes that operate at a certificated gross takeoff weight in excess of 12,500 pounds; and (3) relax the landing distance determination requirement, making it consistent with Parts 23 and 25. This amendment results from a number of petitions for exemption and rulemaking submitted to the FAA and provides economic benefits to commuter airlines by improving operating efficiency without compromising safety. This amendment does not address the possible codification of SFAR 41 into Part 23 as mentioned in Notice 82-3.

FOR FURTHER INFORMATION CONTACT:

Joseph Snitkoff, Certification Procedures and Standards Branch (AWS-130), Aircraft Engineering Division, Office of Airworthiness, Federal Aviation Administration, 800 Independence Ave., S.W., Washington, D.C. 20591, Telephone (202) 426-8395.

SUPPLEMENTARY INFORMATION:

Background

A longstanding limitation, which distinguishes between large and small airplanes, requires all new type certificated airplanes with a maximum certificated takeoff weight of more than 12,500 pounds to meet the transport category airworthiness standards of Part 25 of the Federal Aviation Regulations, regardless of the type of operation or number of passenger seats. At the time this limitation was established in the regulations, there were a few small airplanes with maximum weights near 12,500 pounds. The International Civil Aviation Organization (ICAO) standards make a similar distinction.

SFAR 41 was adopted as an interim standard to permit limited growth and utilization of existing small propeller-driven multiengine airplanes that had demonstrated, through service experience, a satisfactory level of safety. These airplanes were made available to the emerging commuter airline industry consistent with the Airline Deregulation Act of 1978, without compromising the high safety standards in air transportation. SFAR 41 was designed to fill the gap between Part 23 and Part 25 certification standards until commuter airplanes could be developed and certificated to a set of standards more appropriate to their size and type of operation.

SFAR 41 prescribes additional airworthiness standards applicable to existing small propeller-driven multiengine airplanes. It allows, in part, type and airworthiness recertification of these airplanes at weights in excess of 12,500 pounds maximum certificated takeoff weight and with an increase in the number of passenger seats. A design restriction is imposed which limits the maximum zero fuel weight to 12,500 pounds.

The regulation was amended April 14, 1980 (SFAR 41A; 45 FR 25046), for clarification and to make editorial changes. It was further amended December 8, 1980 (SFAR 41B; 45 FR 80972), to specify additional requirements needed to comply with ICAO Annex 8 airworthiness standards. SFAR 41B expired October 17, 1981.

Notice of Proposed Rulemaking (NPRM) 82-3 to reinstate and amend SFAR 41 was published in the *Federal Register* on March 4, 1982 (47 FR 9360). The comment period closed on April 20, 1982. Comments received after the closing date were also considered in accordance with § 11.47(a).

Discussion of Comments

Twenty sets of comments were received concerning Notice 82-3 from many segments of the aviation community. Views of airplane manufacturers, owners, operators, pilots, foreign airplane manufacturers, foreign aviation authorities, and the flying public were received in response to the notice. In addition to the comments on Notice 82-3, one commenter's response to the related petition concerning landing distance determination also is disposed of in this change to SFAR 41.

Reinstatement of SFAR 41

Two commenters oppose reinstating SFAR 41. They maintain that SFAR 41, by virtue of its status as an interim standard, is deficient in many respects to Part 25 and therefore does not provide an equivalent level of safety to Part 25. They point out that SFAR 41 has lower performance standards and lacks comparable emergency evacuation, systems and equipment reliability and integrity, and fire protection requirements.

Regarding the contention that SFAR 41 is deficient compared to Part 25, the FAA wishes to point out that SFAR 41 was never intended as an equivalent to or a replacement for Part 25 with identical requirements. Rather, SFAR 41 was promulgated to enable greater utilization of existing Part 23 type airplanes for commuter operations when those airplanes are certificated to the higher standards of SFAR 41 even though they may not meet transport category certification requirements. The SFAR 41 standards incorporated additional airworthiness, crashworthiness, and airplane performance requirements designed to provide the necessary level of safety for a type of airplane that heretofore had not had such requirements specifically developed for it. Airplanes certificated under SFAR 41 have a good safety record. Extending the applicability of SFAR 41 for a limited period of time will benefit the commuter airplane industry and the flying public by improving service and operating efficiency with no derogation of safety. SFAR 41 was and will continue to be applicable only to small propeller-driven multiengine airplanes certificated before October 17, 1979, with a satisfactory service history at the time of application. This applicability date is not changed by this final rule; therefore, the proposal to reinstate the effectivity of SFAR 41 is adopted without substantive change.

Removal of the Maximum Zero Fuel Weight (MZFW) Restriction

Thirteen commenters support and one opposes removing the MZFW restriction. The opposing commenter proposes that instead of this, a maximum takeoff weight or a new MZFW limitation be established to control the large increases in weights for aircraft used in combined commuter/cargo operations which he predicts could result from removing the restriction. Such large weight increases, however, could not occur since there is a regulatory constraint on maximum payload of 7,500 pounds for commuter operations under Part 135 which, together with the 19-passenger limitation, effectively maintains aircraft weights at reasonable levels. Supporters of the proposal claim that removing the MZFW restriction is in the public interest as it increases the commuter airlines' profit potential and reduces operating costs without any adverse effect on safety. They assert that the MZFW is only a design consideration and should not be a limitation. Further, removing the restriction would permit the use of improved avionics equipment which, even though adding to the aircraft weight, would still result in economic benefits because of the greater payload allowed. Therefore, the proposal to eliminate the MZFW restriction is adopted without substantive change.

19-Passenger Limit

SFAR 41 through Amendment 41B contained no limitation on the number of passengers, but imposed a MZFW restriction of 12,500 pounds. Notice 82-3 made clear that, as a condition for eliminating the MZFW restriction, a specified passenger limit would be prescribed to preclude escalation of airplane size to the point where Part 25 standards would apply. As explained, a 19-passenger configuration was selected as the logical and economic limit to avoid the burden that would be imposed by flight attendant and possible other requirements for additional passengers. Eight commenters support the 19-passenger limitation and six commenters oppose it on the basis that a greater number be allowed. Those opposed believe that passenger capacities above 19 should be permitted as long as the airplane meets all applicable regulations, the safety level is not lowered, and there are some economic benefits to be gained. They point out that SFAR 41 to date does not contain constraints on the number of passengers except to define minimum aisle widths for 10 to 23 passengers and configurations with over 23 passengers, and specifies additional airworthiness standards for 16 to 23 passengers. Therefore, since SFAR 41 permitted applicants to request certification for more than 19 passengers, it is argued that the proposed limitation becomes arbitrarily restrictive in not allowing other manufacturers the same opportunity. Advocates of a higher passenger limitation also agree that the proposed limitation is artificial, that the additional emergency equipment that would be required is minimal, and that the number of emergency exits required for 16 to 23 passengers is the same. Three commenters support a 23-passenger limitation. None of these commenters, however, discuss the passenger limitation in the context of tradeoff for eliminating the MZFW.

When SFAR 41 was originally developed, both the FAA and the public involved in the rulemaking agreed that some constraint should be imposed to limit the number and size of airplanes designed to SFAR 41 standards. The "number" aspect was addressed by making SFAR 41 applicable only to airplanes type certificated before October 17, 1979. To limit the size, both an MZFW and passenger limit were discussed. At that time it was deemed most appropriate to utilize the MZFW as the means for controlling size. In today's economic environment, however, it is realized that this limit may impose undue hardship on SFAR 41 airplane operators and may even impede installing improved equipment. As recognized by some commenters, the FAA must now establish some other limiting criteria to prevent escalating SFAR 41 small airplanes into larger, pseudotransport-category types, and the 19-passenger limitation can effectively serve this purpose. Accordingly, the 19-passenger limitation is adopted without substantive change.

The FAA has reviewed all aircraft certificated (and existing applications for certification) under SFAR 41 and has found that all these airplanes involve no more than 19 passengers. Thus, imposing the 19-passenger limit will not adversely affect any existing application. Limiting the passenger configuration does not contradict the provisions of the Airline Deregulation Act in that it provides economic benefits for existing commuter and cargo operations without degrading safety.

Two commenters state that, if the 19-passenger limitation is adopted, reference to passengers in excess of 19 in the table of paragraph 5(e) (*k*) under *Doors and Exits* should be deleted. The FAA agrees and the table is amended to reflect the maximum passenger seating configuration of 19. Other changes proposed in Notice 82-3, consistent with the elimination of the MZFW restriction and adoption of the 19-passenger-seat configuration (proposals numbered 3, 4, 6, and 7), are adopted without change. No substantive comments beyond those previously discussed were made on these proposals.

Landing Distance Determination

Proposal 5 addresses the landing distance determination of SFAR 41 airplanes. It proposes to amend paragraph 5(c) (*a*) to relax the landing distance determination requirement to make it consistent with current Parts 23 and 25. In addition to comments expressing overall concurrence with Notice 82-3, six commenters specifically support the proposed change to paragraph 5(c) (*a*). Additionally, one of these commenters suggests two changes to Appendix A of Part 135. One change pertains to paragraph 6(a) (2) of Appendix A of Part 135 and would separate the go-around and landing cases or completely eliminate the $1.05V_{MC}$ requirement. The other change would realign paragraph 7(b) of Appendix A of Part 135 to relax the landing distance determination requirement in a manner similar to that proposed for SFAR 41, paragraph 5(c) (*a*). Neither of the changes suggested by the commenter are addressed at this time as revising Part 135 is beyond the scope of this rulemaking action.

However, the FAA does recognize that all applicants eligible for an amended or supplemental type certificate under SFAR 41 should be entitled to the benefits of the relaxed landing distance determination requirement proposed for paragraph 5(c) (*a*). Therefore, in addition to amending paragraph 5(c) (*a*) as proposed, which relaxes the requirement for aircraft certified under paragraph 1(b) of SFAR 41, identical relief is granted for aircraft certificated under paragraph 1(a) of SFAR 41 by amending paragraph 1(a) (2) to allow the 1.3V_{s1} gliding approach of the present § 23.75(a) or an alternative steady approach of a specified gradient.

One commenter disagrees with the proposal to relax the landing distance determination requirement of paragraph 5(c) (*a*) by allowing landing distances to be determined in accordance with § 23.75. The commenter cites the proliferation of operations under Part 135 with SFAR 41 airplanes and notes the importance and advantages of requiring the same high level of safety as provided under Part 121. The commenter cites the added safety factors in Part 121 of 1.67 and 1.43 for landing distances at destination and alternate airports, respectively.

The FAA agrees with the commenter's assertion with regard to the level of safety in landing distance determination for Parts 135 and 121 aircraft. This is exemplified by the fact that the 1.67 and 1.43 safety factors are required in both Parts 135 and 121. With the continued applicability of these identical landing safety factors and approach techniques, the same high level of safety will be maintained for landing distance determination with both SFAR 41/Part 135 and transport category/Part 121 airplanes.

By implementing the proposed change to SFAR 41, the landing distance would be determined using either a 1.3V_{s1} power approach or a 1.3V_{s1} gliding approach as specified currently in both §§ 23.75 and 25.125. If paragraph (*a*) under Section 5(c) of SFAR 41 remains unchanged, longer (and thus more conservative) landing distances would be specified for an airplane certificated under SFAR 41 than if that airplane were certificated under the existing Part 23 or Part 25. There is no justifiable reason for this inequity to exist. Because landing distances determined under SFAR 41 were overly conservative and since the landing safety factors are identical in Parts 135 and 121, the FAA cannot support the commenter's position. Therefore, the change to paragraph (*a*) under Section 5(c) is adopted as proposed and paragraph 1(a) (2) is similarly revised for consistency.

Miscellaneous Comments

Notice 82-3 proposed to extend the pre-existing production cutoff date by 2 years. Five commenters express support of the extension and cite the reasons given in the NPRM. One commenter misunderstood the proposal, believing the extension of the cutoff date to be only 1 year, and states that it should be related to the effective date of the amendment. The proposal to extend the production cutoff date from 1989 to 1991 is adopted without substantive change.

Proposal 8 extends the expiration date of SFAR 41C to 1 year after the effective date of this amendment. Five commenters specifically support this proposal and one commenter suggests that the expiration date be extended to 2 years. The FAA believes that 1 year affords sufficient time for manufacturers to apply for certification of their existing models with the MZFW restriction removed. Proposal 8 is adopted without substantive change.

One commenter proposes to delete the date "October 17, 1979" from paragraph 1(a) and 1(b) of SFAR 41 and to insert in its place "the effective date of this amendment." He states that under the proposed rule, an applicant having designed an airplane of this class after October 17, 1979, would be required to certify its airplane under Part 25 and would not be permitted certification under SFAR 41. The commenter feels it would be arbitrarily restrictive not to permit an applicant the opportunity to certify its airplane to SFAR 41 standards. The FAA considers this suggested change to be outside the scope of this rulemaking action.

Comments on Codification of SFAR 41 into Part 23

Notice 82-3 invited comments on the advisability of codifying the substance of SFAR 41B and the proposed SFAR 41C into Part 23 and to extend its applicability to new multiengine airplanes having a maximum takeoff gross weight greater than 12,500 pounds with 19 passenger seats. By its request, the FAA merely wished to accept preliminary comments on the advisability of changing Part 23, with the intent that any definite proposals would be included in future notices. Many interesting views and comments received on this issue are included in the docket file. In general, there is great interest in providing a viable regulation applicable to the certification of commuter airplanes. The FAA realizes that this issue needs careful study and review by all concerned, and it will be addressed in a separate notice.

Economic Impact and Benefits

Eliminating the MZFW restriction will have no adverse safety impact and may, in fact, improve safety because operators will be encouraged to add additional or improved avionics equipment. Aircraft operators will now be able to add more passenger seats, up to 19, increase baggage allowances, provide improved passenger amenities, and increase cargo capacity. Because the marginal cost of carrying the additional payload would be relatively low compared to the additional revenue for such carriage, the added utility of this payload increase could be significant.

A commuter carrier estimates that the proposed rule would permit an additional 1,500 pounds of cargo in its aircraft. At a cargo yield of 40 cents per pound, the carrier has the potential to increase its revenue by $936,000 per year. In addition, the carrier points out that there have been instances where it had been forced to refuse a shipment because of its weight. It also could increase the number of its passengers from 16 to 19 on one of its route segments.

It has been determined that the proposal to allow the use of shorter runways will not have an adverse impact upon safety. Economic benefits include the increased availability of air transportation to small cities that might otherwise be denied service because of short runways. For example, for a certain airplane the landing distance could be reduced from 5,171 feet to 4,100 feet. While difficult to measure in dollar terms, the benefits would be substantial, and because there would be no adverse impact on safety, the regulatory change will be in the public interest.

The airplane manufacturer will face some moderate costs in recertifying the airplane to the proposed new weight and landing distance criteria. An airplane manufacturer who does not wish to establish revised weight or landing distance limitations will not incur these costs.

Summary of Final Regulatory Flexibility Analysis

The Regulatory Flexibility Act requires an analysis of alternatives if a proposal has a significant economic impact on a substantial number of small entities.

The amendment to eliminate the MZFW restriction will have a significant positive impact on a substantial number of entities. The amendment is relaxatory in nature and a manufacturer may choose either to seek the benefits of the proposal or maintain the status quo. No further easing of the MZFW restriction is possible; therefore, there are no other alternatives to consider.

The amendment relating to the minimum landing distance determination will have a significant economic impact on a substantial number of small entities. There are no other relaxatory alternatives consistent with safety. Thus landing distance determination is needed to be consistent with longstanding §§ 23.75 and 25.125, the requirements of which have been proven by service experience and for which there is no safety basis to consider further relaxation.

If increasing the proposed 19-passenger limitation (for example, to 23 passengers) would improve the economic utility of a qualifying airplane as some commenters contend, this would not impact a substantial number of small entities and, therefore, need not be analyzed. The agency believes that without an MZFW restriction, there must be a passenger limitation to prevent these SFAR 41 airplanes which do not meet Part 25 standards from an uncontrolled increase in size. It is the FAA's judgment that airplanes carrying more than 19 passengers require different standards. The FAA will review Parts 23 and 25 as applicable to new commuter type airplanes and will give careful consideration to the issue of a passenger limitation.

The final Regulatory Flexibility Analysis and Regulatory Flexibility Determination are combined with the Regulatory Evaluation in the docket.

ADOPTION OF AMENDMENT

Accordingly Special Federal Aviation Regulation 41 (14 CFR Parts 21, 23, 36, 91, 121, 135, and 139) is amended effective September 13, 1982.

(Sec. 313(a), 601, 603, and 604 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)).)

NOTE: This amendment will allow manufacturers and operators of certain existing airplanes the option of complying with relaxed requirements that will increase payloads and improve air carrier services to the public. The FAA has determined that it involves a regulation which is not a major rule under Executive Order 12291 and is not a significant rule under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A regulatory evaluation, including a final regulatory flexibility analysis, has been placed in the public docket. A copy of it may be obtained from the person identified under "FOR FURTHER INFORMATION CONTACT."

Special Federal Aviation Regulation 41

1. *Applicability.* (a) Contrary provisions of Parts 21 and 23 of the Federal Aviation Regulations notwithstanding, an applicant is entitled to an amended or supplemental type certificate in the normal category for a reciprocating or turbopropeller-powered multiengine small airplane originally type certificated prior to October 17, 1979, in accordance with Part 23 of the Federal Aviation Regulations in effect on March 31, 1971, or later, that is to be certificated with a passenger seating configuration, excluding pilot seats, of 10 seats or more (but not more than 19 seats) at a maximum certificated takeoff weight of 12,500 pounds or less, if the applicant complies with—

(1) The regulations incorporated in the type certificate; and

(2) The requirements of Appendix A of Part 135 of the Federal Aviation Regulations in effect on September 26, 1978, except that the landing distance must be determined for standard atmosphere at each weight, altitude, and wind within the operating limits established by the applicant in accordance with § 23.75(a) of this chapter in effect on September 26, 1978. Instead of a gliding approach specified in § 23.75(a), the landing may be preceded by a steady approach down to the 50-foot height at a gradient of descent not greater than 5.2 percent (3°) at a calibrated airspeed not less than $1.3V_{s1}$.

(b) Contrary provisions of Parts 1, 21, 23, 91, 121, and 135 of the Federal Aviation Regulations notwithstanding, an applicant is entitled to an amended or supplemental type certificate in the normal category for a reciprocating or turbopropeller powered multiengine airplane originally type certificated prior to October 17, 1979, that is to be certificated with a maximum takeoff weight in excess of 12,500 pounds, a specified maximum zero fuel weight to be established by the applicant, and, where requested by the applicant, an increase in passenger seating configuration, (but not more than 19 passenger seats) if the applicant complies with—

(1) The regulations incorporated in the type certificate;

(2) The requirements of Appendix A of Part 135 of the Federal Aviation Regulations in effect on September 26, 1978 with the exceptions specified in section 5 of this Special Federal Aviation Regulation; and

(3) The additional requirements specified in sections 7 through 14 of this Special Federal Aviation Regulation applicable to takeoff weights in excess of 12,500 pounds.

(c) Contrary provisions of Part 1 of the Federal Aviation Regulations notwithstanding, an airplane certificated under paragraph (b) of this section is considered to be a small airplane for purposes of Parts 21, 23, 36, 121, 135, and 139 of the Federal Aviation Regulations and a large airplane for purposes of Parts 61 and 91. Compliance with the small airplane provisions of Part 36 of the Federal Aviation Regulations must be shown at the maximum certificated takeoff weight approved under this Special Federal Aviation Regulation.

2. *Eligibility.* Any person may apply for a supplemental type certificate (or an amended type certificate in the case of a type certificate holder) under this Special Federal Aviation Regulation.

3. *Production limitation.* An amended or supplemental type certificate issued pursuant to section 1.(b) of this Special Federal Aviation Regulation is effective for the purpose of obtaining an original or an amended airworthiness

certificate, until October 17, 1991, unless the type certificate is sooner surrendered, suspended, revoked, or terminated.

4. *Restrictions.* For airplanes under section 1.(b) of this Special Federal Aviation Regulation—

(a) The maximum zero fuel weight of the airplane must be established as an operating limitation; and

(b) Except as provided in paragraph (c) of this section, the airworthiness certificate shall be endorsed "This airplane at weights in excess of 5,700 kg does not meet the airworthiness requirements of ICAO, as prescribed by Annex 8 of the Convention on International Civil Aviation."

(c) An applicant is entitled to type certificate amendment or a supplemental type certificate that shows compliance with ICAO Annex 8 if the airplane meets SFAR 41 and the following requirements prescribed by the Administrator in effect on October 17, 1979:

(1) At each weight, altitude, and temperature within the operational limits selected by the applicant—

(i) For approach climb performance, comply with §§ 25.121(d) and 25.1533(a) (2).

(ii) For takeoff performance, comply with §§ 25.105(d), 25.111, 25.113(a), and 25.115.

(2) For gust loads design at rough air gust speed V_B, comply with §§ 25.335(d), 25.341(a) (1), and 25.351(b).

(3) For smoke evacuation design, comply with § 25.831(d).

(4) For engine rotation and restarting design, comply with §§ 25.903(c) and (e).

(5) For engine cooling design, comply with § 25.1521(e).

5. *Exceptions.* For purposes of obtaining an amended or supplemental type certificate under section 1.(b) of this Special Federal Aviation Regulation, the following exceptions apply. All references in this section to specific sections of Parts 23 and 25 of this chapter are to those in effect on September 26, 1978 if no other date is given:

(a) Compliance with section 1 of Appendix A of Part 135 of the Federal Aviation Regulations is not required.

(b) Compliance may be shown with the applicable regulations incorporated in the type certificate in lieu of the requirements of Appendix A of Part 135 of the Federal Aviation Regulations for takeoff weights of 12,500 pounds or less, if the airplane was type certificated—

(1) Under FAR Part 23 in effect prior to Amendment 23–10 and the airplane is to be used only in FAR Part 91 operations;

(2) Before July 1, 1970, in the normal category with a passenger seating configuration, excluding any pilot seat, of 10 seats or more, (but not to exceed 19 passenger seats) and meets special conditions issued by the Administrator for airplanes intended for use in operations under FAR Part 135; or

(3) Before July 19, 1970, in the normal category with a passenger seating configuration, excluding any pilot seat, of 10 seats or more, (but not to exceed 19 passenger seats) and meets the additional airworthiness standards in Special Federal Aviation Regulation No. 23.

(c) In lieu of compliance with sections 7., and 19.(c) of Appendix A of Part 135 of the Federal Aviation Regulations, comply with the following at takeoff weights in excess of 12,500 pounds:

Landing.

(*a*) The landing distance must be determined for standard atmosphere at each weight, altitude, and wind within the operational limits established by the applicant in accordance with § 23.75(a) of this chapter. Instead of a gliding approach specified in § 23.75(a), the landing may be preceded by a steady approach down to the 50-foot height at a gradient of descent not greater than 5.2 percent (3°) at a calibrated airspeed not less than 1.3 V_{S1}.

(*b*) The landing distance data must include correction factors for not more than 50 percent of the nominal wind components along the landing path opposite to the direction of landing, and not less than 150 percent of the nominal wind components along the landing path in the direction of landing.

(d) In lieu of compliance with Section 28 of Appendix A of Part 135 of the Federal Aviation Regulations, comply with the following:

Fatigue evaluation of flight structure. Unless it is shown that the structure, operating stress levels, materials, and expected use are comparable from a fatigue standpoint to similar design which has had substantial satisfactory service experience, the strength, detail design, and the fabrication of those parts of the wing, wing carrythrough, vertical fin, horizontal stabilizer, and attaching structure whose failure would be catastropic must be evaluated under either—

(*a*) A fatigue strength investigation in which the structure is shown by analysis, tests, or both, to be able to withstand the replaced loads of variable magnitude expected in service. Analysis alone is acceptable only when it is conservative and applied to simple structures; or

(*b*) A fail-safe strength investigation in which it is shown by analysis, tests, or both, that catastrophic failure of the structure is not probable after fatigue, or obvious partial failure, of a principal structural element, and that the remaining structure is able to withstand a static ultimate load factor of 75 percent of the critical limit load factor at V_c. These loads must be multiplied by a factor of 1.15 unless the dynamic effects of failure under static load are otherwise considered.

(e) In lieu of compliance with section 32 of Appendix A of Part 135 of the Federal Aviation Regulations, comply with the following:

Doors and exits. The airplane must meet the requirements of §§ 23.783 and 23.807(a)(3), (b), and (c) of this chapter, and in addition the following requirements:

(*a*) Each cabin must have at least one easily accessible external door.

(*b*) There must be a means to lock and safeguard each external door against opening in flight (either inadvertently by persons or as a result of mechanical failure or failure of a single structural

element). Each external door must be operable from both the inside and the outside, even though persons may be crowded against the door on the inside of the airplane. Inward opening doors may be used if there are means to prevent occupants from crowding against the door to an extent that would interfere with the opening of the door. The means of opening must be simple and obvious and must be arranged and marked so that it can be readily located and operated, even in darkness. Auxiliary locking devices may be used.

(*c*) Each external door must be reasonably free from jamming as a result of fuselage deformation in a minor crash.

(*d*) Each external door must be located where persons using it will not be endangered by the propellers when appropriate operating procedures are used.

(*e*) There must be a provision for direct visual inspection of the locking mechanism by crewmembers to determine whether external doors, for which the initial opening movement is outward (including passenger, crew, service, and cargo doors), are fully locked. In addition, there must be a visual means to signal to appropriate crewmembers when normally used external doors are closed and fully locked.

(*f*) Cargo and service doors not suitable for use as exits in an emergency need only meet paragraph (*e*) of section 5(e) of this regulation and be safeguarded against opening in flight as a result of mechanical failure or failure of a single structural element.

(*g*) The passenger entrance door must qualify as a floor level emergency exit. If an integral stair is installed at such a passenger entry door, the stair must be designed so that when subjected to the inertia forces specified in § 23.561 of this chapter, and following the collapse of one or more legs of the landing gear, it will not interfere to an extent that will reduce the effectiveness of emergency egress through the passenger entry door. Each additional required emergency exit except floor level exits must be located over the wing or must be provided with acceptable means to assist the occupants in descending to the ground. In addition to the passenger entrance door—

(*1*) For a total passenger seating capacity of 15 or less, an emergency exit, as defined in § 23.807(b) of this chapter, is required on each side of the cabin; and

(*2*) For a total passenger seating capacity of 16 through 19, three emergency exits, as defined in § 23.807(b) of this chapter, are required with one on the same side as the door and two on the side opposite the door.

(*h*) An evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is desired. It must be conducted under simulated night conditions utilizing only the emergency exits on the most critical side of the aircraft. The participants must be representative of average airline passengers with no prior practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.

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(*i*) Each emergency exit must be marked with the word "Exit" by a sign which has white letters 1 inch high on a red background 2 inches high, be self-illuminated or independently internally electrically illuminated, and have a minimum luminescence (brightness) of at least 160 microlamberts. The colors may be reversed if the passenger compartment illumination is essentially the same.

(*j*) Access to window type emergency exits may not be obstructed by seats or seat backs.

(*k*) The width of the main passenger aisle at any point between seats must equal or exceed the values in the following table:

Number of passenger seats	*Minimum main passenger* aisle width	
	Less than 25 inches from floor	25 inches and more from floor
10 through 19	9 inches	15 inches.

(f) In lieu of compliance with Section 45 of Appendix A of Part 135 of the Federal Aviation Regulations, comply with § 23.954 of this chapter.

(g) In lieu of compliance with Section 56 of Appendix A of Part 135 of the Federal Aviation Regulations, comply with the following:

Cowlings. The airplane must be designed and constructed so that no fire originating in any engine compartment can enter, either through openings or by burn through), any other region where it would create additional hazards.

(h) In lieu of compliance with Section 57 of Appendix A of Part 135 of the Federal Aviation Regulations, comply with § 25.863 of this chapter.

6. *Additional requirements—general.* The additional requirements specified in sections 7 through 14 apply to the certification of airplanes pursuant to section 1.(b) of this Special Federal Aviation Regulation.

7. *Compartment interiors.* (a) If smoking is to be prohibited, there must be a placard so stating, and if smoking is to be allowed—

(1) There must be an adquate number of self-contained removable ashtrays; and

(2) Where the crew compartment is separated from the passenger compartment, there must be at least one sign (using either letters or symbols) notifying all passengers when smoking is prohibited. Signs which notify when smoking is prohibited must—

(i) Be legible to each passenger seated in the passenger cabin under all probable lighting conditions; and

(ii) When illuminated, be so constructed that the crew can turn them on and off.

(b) Each disposal receptacle for towels, paper, or waste must be fully enclosed and constructed of at least fire resistant materials, and must contain fires likely to occur in it under normal use. The ability of the disposal receptacle to contain those fires under all probable conditions of wear, misalignment, and ventilation expected in service must be demonstrated by test. A placard containing the legible words "No Cigarette Disposal" must be located on or near each disposal receptacle door.

(c) Lavatories must have "No Smoking" or "No Smoking in Lavatory" placards located conspicuously on each side of the entry door, and self-contained removable ashtrays located conspicuously on or near the entry side of each lavatory door, except that one ashtray may serve more than one lavatory door if it can be seen from the cabin side of each lavatory door served. The placards must have red letters at least one-half inch high on a white background at least one inch high. (A "No smoking" symbol may be included on the placard).

(d) There must be at least one hand fire extinguisher conveniently located in the pilot compartment.

(e) There must be at least one hand fire extinguisher conveniently located in the passenger compartment.

8. *Landing gear.* Comply with §§ 25.721(a)(2), (b), and (c) of this chapter in effect on September 26, 1978.

9. *Fuel system components crashworthiness.* Comply with §§ 25.963(d) and 25.994 of this chapter in effect on September 26, 1978.

10. *Shutoff means.* Comply with § 23.1189 of this chapter in effect on September 26, 1978.

11. *Fire detector and extinguishing systems.*

(a) *Fire detector systems.*

(1) There must be a means which ensures the prompt detection of a fire in an engine compartment.

(2) Each fire detector must be constructed and installed to withstand the vibration, inertia, and other loads to which it may be subjected in operation.

(3) No fire detector may be affected by any oil, water, other fluids, or fumes that might be present.

(4) There must be means to allow the crew to check, in flight, the function of each fire detector electric circuit.

(5) Wiring and other components of each fire detector system in an engine compartment must be at least fire resistant.

(b) *Fire extinguishing systems.*

(1) Except for combustor, turbine, and tail pipe sections of turbine engine installations that contain lines or components carrying flammable fluids or gases for which it is shown that a fire originating in these sections can be controlled, there must be a fire extinguisher system serving each engine compartment.

(2) The fire extinguishing system, the quantity of the extinguishing agent, the rate of discharge, and the discharge distribution must be adequate to extinguish fires. An individual "one shot" system may be used.

(3) The fire-extinguishing system for a nacelle must be able to simultaneously protect each compartment of the nacelle for which protection is provided.

12. *Fire extinguishing agents.* Comply with § 25.1197 of this chapter in effect on September 26, 1978.

13. *Extinguishing agent containers.* Comply with § 25.1199 of this chapter in effect on September 26, 1978.

14. *Fire extinguishing system materials.* Comply with § 25.1201 of this chapter in effect on September 26, 1978.

Expiration. This Special Federal Aviation Regulation terminates on September 13, 1983, unless sooner rescinded or superseded.

Special Federal Aviation Regulation 44-5

Air Traffic Control System Interim Operations Plan

Adopted: August 9, 1982 **Effective: August 12, 1982**

(Published in 47 FR 35156, August 12, 1982)

SUMMARY: This amendment to Special Federal Aviation Regulation (SFAR) No. 44-3 establishes certain procedures for the operation of the National Air Traffic Control (ATC) System, including procedures to be used in the allocation of additional system capacity as it becomes available, while providing for the safe and efficient operation of the air traffic control system. The Administrator has determined that a situation still exists which requires reduced ATC capacity and that the continuation of special air traffic provisions is necessary to provide for the efficient and safe movement of air traffic. This amendment makes adjustments to the air traffic procedures established by SFAR 44-3 to provide for a more efficient movement of air carrier traffic. The amendment eliminates the need for carrier submissions to the FAA and establishes a slot selection system which allows carriers to choose the slots they desire from those available during a slot selection session.

ADDRESSES: Send comments on the rule in duplicate to:

Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-204), Docket No. 22050, 800 Independence Avenue, S.W., Washington, D.C. 20591.

Comments may be examined in the Rules Docket, weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

PUBLIC HEARING: On August 19, 1982, a public hearing will be held in the FAA Auditorium, third floor, 800 Independence Avenue, S.W., Washington, D.C., to allow FAA representatives to explain this rule and to answer any questions concerning the procedures implemented herein. The hearing will begin at 9:00 a.m.

FOR FURTHER INFORMATION CONTACT:

Edward P. Faberman
Deputy Chief Counsel
202-426-3775

or

Thomas P. Messier
Deputy Director, Office of Aviation Policy and Plans
202-426-0583

Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

SUPPLEMENTARY INFORMATION:

Comments Invited

Although this amendment was preceded by a notice of proposed rulemaking, comments are invited on this Special Federal Aviation Regulation.

The FAA also invites comments on the procedures outlined in this regulation. Comments are specifically invited on any aspects of the operation of the Air Traffic Control System under this amendment that suggest a need to modify the regulation, or which should be considered should additional procedures be necessary. Comments received will be reviewed on a continuing basis and this amendment and the Interim Operations Plan may be changed in the light of comments received. Commenters wishing the FAA to acknowledge receipt of their comments in response to this rule must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 22050." The postcard will be date/time stamped and returned to the commenter.

Background and Discussion

On February 22, 1982, the FAA published SFAR No. 44-3 (47 FR 7816) which modified the previously established special air traffic rules that had been adopted in response to the reduced air traffic control capacity caused by the illegal actions of certain air traffic controllers. Under SFAR 44-3, random drawings have been held to determine the priority order for the allocation of additional arrival capacity at all airports within the contiguous United States in place of the first-come-first-served procedures formerly used. SFAR 44-3 also provides "new entrants" priority treatment in the drawings. "New entrants" are defined in the SFAR as carriers that applied for operating authority from the Civil Aeronautics Board (CAB) prior to August 3, 1981, but had not initiated operations by February 17, 1982. They are given the first priority in each round of drawings for slots. Drawings have been held under SFAR 44-3 for the additional Air Route Traffic Control Center (ARTCC) and controlled airport capacity which will become available for the schedule periods through October 1982.

On March 18, 1982, the FAA issued Notice No. 82-5 (47 FR 12320; March 22, 1982) which requested public comments on a possible change to SFAR 44-3 involving a redefinition of the term "new entrant" as used therein. The notice was issued at the request of the CAB and proposed that "new entrant" be defined as any carrier that has commenced or will commence operations with aircraft having more than 60 seats on or after October 24, 1978. Notice 82-5 would also limit the time period a carrier could be considered a "new entrant" and the number of airports at which new entrants could request slots under the SFAR. The comments submitted on that notice have been considered in this rulemaking.

On June 15, 1982, the FAA issued Notice No. 82-8 (47 FR 26112; June 16, 1982) which proposed several alternative allocation procedures to be used to allocate additional system capacity as it becomes available. It also requested comments on the existing SFAR 44-3 slot allocation procedures.

The NPRM proposed to divide the additional slots available at controlled airports between incumbent carriers and new entrants. It was proposed that the slots would be distributed in three phases—first at a New Entrant Lottery, then at an Impacted Incumbent Ranked Drawing, and finally at a General Random Lottery. It was proposed that impacted incumbents be defined as those carriers who, on the date the drawing is held, hold fewer slots at particular controlled airports than they did on September 1, 1981. Comments were solicited on the parties to be included in the General Random Lottery.

Comments on the proposal were submitted by air carrier associations, groupings of air carriers, individual air carriers, airport operators, local and municipal governments, and individuals. All comments submitted have been considered in the promulgation of this final rule.

Discussion of Comments and Final Rule

Significant comments were submitted on all aspects of the proposal. The following discussion summarizes the rule, explains the changes from the proposal and discusses a number of the significant comments.

Since the implementation of the Interim Operations Plan, it has been the FAA's objective to utilize procedures which have permitted the safe and efficient operation of the ATC system based upon the air traffic work force available at each ATC facility within the system while allowing the air carriers the maximum possible control over their operations. This goal has been achieved with cooperation of all classes of users. Any procedures utilized should permit adjustments to the system to provide the industry with the ability to change route systems and schedules that routinely occur. This will result in improved service for the public.

A number of commenters have suggested that the agency abandon the "lottery" system currently being used for slot distribution. The Air Transport Association (ATA) suggested that carriers be permitted to make their own selections of new or additional slots in accordance with an established list determining the order in which selections can be made.

The Regional Airline Association (RAA) also proposes one rotating selection procedure for all slot allocation purposes. They state that this will guarantee that every carrier desiring slots will have the opportunity for a priority selection at some point. Most of the commenters support this concept.

Slot Selection Session

Slot selection will function in the following manner. All air carriers seeking authority for flights in excess of their current approved base must notify the Office of the Chief Counsel, in writing (original and two copies), of the identity of the individual or individuals who will represent the carrier in the slot selection session. On August 20, 1982, the FAA will conduct a random draw to determine the order of selection for all future allocation periods. All carriers which submit the required information to the Rules Docket, Office of the Chief Counsel (AGC-204) by 5:00 p.m. on August 17, 1982, will be included in the draw. Notification for future slot selection sessions must be received 72 hours before the beginning of the slot session. Once a carrier is on the selection list, it need not submit additional notification to the FAA unless it desires to change the individuals who will represent it in future slot selection sessions.

A carrier which submits the required notification, that it seeks slots, to the Chief Counsel's Office after the first session, will be added to the end of the selection list as of the time of its submission.

A number of commenters urge that the FAA should publicly disclose additional capacity in advance of each slot selection session to assist carriers in schedule planning. A number of commenters suggest that this disclosure be made at least 60 days in advance of each allocation period. ATA suggests that the disclosure should make known to the carriers the additional slots at the controlled airports by hour. The FAA has made every attempt to provide as much advance notice as possible as to future availability of slots. For example, SFAR 44-3, which was issued on February 18, 1982, contained a list of targeted slot increases at the controlled airports and at the centers from April through October. The FAA will continue to provide this information as far in advance of a scheduling period as possible. At a minimum, this information will be made public approximately 60 days before the beginning of the schedule period and will show the hours at which the slots will be available at the controlled airports and the total number of slots available in the ARTCC's. It must be emphasized that the information disclosed relating to slot availability represents the agency's current assessment of staffing and training. Since those factors may change over a several week period, it is possible that the exact number and time of slots available at a slot selection session may have to be adjusted a few days before the session.

Some commenters state that information concerning slots should be made available to all interested parties. Most agency documents relating to slot allocation are published in the FEDERAL REGISTER and are circulated to the news media. The agency will continue to do this to maximize public participation in agency decisions and knowledge of agency actions.

After determining the order of priority for slot selection, the next step in the process is the actual procedure to determine which carriers will obtain the slots. Under SFAR 44-3, slots are awarded by the FAA in accordance with a priority established by a random draw. Carriers are required to submit requests for slots in priority order. As slots are allocated, individual carriers are given slots based upon availability of the carrier's highest listed priority slots.

A number of commenters suggest that a procedure be incorporated which reduces FAA's direct administrative involvement in the process and its direct involvement in airline schedule management. In addition, these commenters suggest that reliance on blind selection be eliminated.

Comments submitted by Joint Carriers[1] on the current SFAR 44-3 allocation procedures state:

> Because the carriers are required blindly to submit request lists without knowing what slots will be made available, the current system provides an incentive to carriers to request an enormous number of slots at all times of the day. This way a carrier increases its chances of getting some slots whether or not they really need those slots. Such a system clearly creates waste and inefficient allocation and use of slots.

Frontier Airlines in its comments states:

> We strongly support the Joint Comments' provisions of carrier *selection* of new slots and automatic FAA approval of these selections. This procedure would obviate the need for the voluminous schedule submissions which are now made prior to each allocation. More importantly, carriers would know what slots they would be receiving beforehand, thereby increasing the probability that they could actually use the slots and decreasing the risk that they would receive a slot on one end of a proposed route without receiving the reciprocal slot on the other end.

As stated above, the FAA believes that any allocation system promulgated should provide for maximum industry flexibility. Therefore, the proposal is modified to provide for a slot selection system which will allow carriers to select slots they prefer without the need to submit written requests. This will reduce the burden on all carriers by eliminating the need to make multiple and sometimes lengthy submittals to the FAA but will also reduce the need for agency personnel to process and respond to these requests. Thus, the costs of both the industry and the Government will be decreased.

The slot selection process will function as follows. Approximately 55 days before the beginning of a schedule period, the FAA will conduct a slot selection session. At the session, air carriers may select available slots from any controlled airport or ARTCC in accordance with the priority established by the one-time random draw. The slots to be awarded as part of the slot selection sessions are only for scheduled service. Slots for charter operations will be handled by the Central Flow Control Facility as described below.

All available slots at the slot selection session will be listed. As a carrier's turn is called it may select any two (or more, as discussed below) available slots. It must make that selection within 5 minutes or it will lose its turn. If capacity still remains after each air carrier on the priority list has had an opportunity to select slots, the allocation sequence will be repeated based upon the order established by the random draw.

Under SFAR 44-3 procedures, a number of charter operators submitted requests for slots in the same manner as other carriers. Those charter operations were accommodated on an individual basis as part of the FAA allocation process. However, it would not be appropriate for carriers to take part in the slot selection process for charter operations. That would result in carriers selecting slots which might only be used a few days during the schedule period. Therefore, slots for charter operations will be distributed by Central Flow Control and not during the slot selection sessions. Requests for charter operations may be submitted up to 70 days before the start of the schedule period in which the operation is planned. The FAA will make every effort to notify carriers within 15 days of receipt of request whether the request is approved. Requests made to Central Flow Control earlier than 15 days prior to the date of intended operation must be in writing and in the format currently being used. Those slots requested cannot be operated without written approval from the FAA. All other charter, extra session, emergency, ferry, pilot training, and mechanical repair checkout flight requests shall continue to be made to Central Flow Control as under existing procedures.

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[1] Comments submitted on behalf of Air Cal, American Airlines, Delta Airlines, Eastern Airlines, Frontier Airlines, Ozark Airlines, Piedmont Airlines, Republic Airlines, Trans World Airlines, United Airlines, USAir.

A number of commenters state that a carrier should be given an option to select a slot or to pass and obtain a priority selection during the next selection session. They state that this will reduce the selection of unneeded slots which are likely to be unused. Since this appears to be beneficial to the carriers, airport operators, and the public, this amendment provides for "passing." An air carrier deciding not to select slots in a particular session must advise the FAA, in writing, prior to the day of the session or verbally during the session, but prior to that carrier's first opportunity to select slots, that it will "pass." If a carrier passes from one session to the next it will be placed at the top of the selection order for the next selection session and will remain in that position in future sessions.[2] If more than one carrier passes, the carrier that passes first will select first at the next session and will remain in that selection position for future selection sessions. The number of slots that can be selected in the next session by a carrier which passes are the slots which that carrier was entitled to select in the first slot selection sequence. In order to limit the number of slot selections that can be accumulated by any particular carrier, a carrier cannot pass in consecutive sessions except for a new entrant carrier which may pass in two consecutive sessions. If a carrier does not use its "passed" selections in the next schedule session, it will lose those selections.

In the NPRM, comments were requested on whether a portion of the allocation should be on an airport-by-airport basis or on a national basis. The rule includes a "national" lottery.

Joint Comments (Joint Commenters) filed by a number of carriers[3] state:

> Under the current system, a slot acquired at one airport may be unusable by a carrier with a limited route system if the carrier is not lucky enough to acquire a slot at another airport so timed that a marketable schedule can be constructed. Therefore, slots are not utilized often for scheduled services during a schedule period . . . .

The Joint Carriers state in respect to this issue:

> A national lottery has one advantage: When a carrier's turn to select two slots arrives, it can select one slot from Airport A and another from Airport B, thereby immediately creating a new round trip opportunity. This advantage is, however, outweighed by serious administrative obstacles to the establishment of an equitable national lottery.

The FAA agrees with both sets of comments and the amendment incorporated herein sets forth procedures which are consistent with both. The amendment provides for a national selection process which allows carriers to select slots at any controlled airport or center. If each carrier had the same number of selections in each round, a carrier with a few operations per day at a few airports would be placed on an equal footing with carriers operating hundreds of operations at dozens of airports. This would be inconsistent with the current slot selection process and would create inequities. An equitable slot distribution system requires some recognition of differences between these types of operations. Therefore, the amendment provides for additional slot selections based upon the number of controlled airports at which an air carrier operates. The number of slot selections which a carrier is entitled to is as follows:

Number of controlled airports at which carrier operates (minimum of 2 slots) as of 8/1/82	*Number of slots carrier may select*
0-5	2
6-21	4

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[2] One slot selection session will be held for each scheduling period. Scheduling periods are for 2-month periods—November-December, January-February, March-April, etc.

[3] Joint Comments were filed on behalf of Air Florida, Alaska Airlines, Capitol Air, Continental Air Lines, Empire Airlines, Midway Airlines, New York Air, Pacific Southwest Airlines, Pan American World Airways, Texas International, and Wein Air Alaska.

In order to limit this recognition, after the first slot selection sequence (round), all carriers will be limited to two selections each time their turn comes up in the selection process.

All parties are reminded that for purposes of this SFAR, the following airport pairs are considered to be the same: O'Hare-Midway; Dallas-Love; Houston International-Hobby.

Impacted Incumbent

The NPRM proposed that a percentage of available slots be allocated to impacted incumbents based upon the percentage of slots that the impacted carrier held on September 1, 1981. It was proposed that the impacted incumbents that lost the most slots be given priority in the selection process.

The Joint Carriers state:

> There is no question that such "impacted incumbent" carriers have been adversely affected by the FAA's slot control program and should, as a matter of equity, receive special status in the distribution of slots.

FAA proposes to grant some priority to restoring the services of incumbents which have been more severely cut back than other incumbents. They propose that impaction be determined on a systemwide basis, based on operations at the 22 pacing airports. They state that allocating slots to incumbents at a particular airport would result in an unfair windfall to those carriers.

Other commenters state that giving some carriers a priority over others is not supported by the facts. They state that all operators have been adversely affected as a result of slot restrictions. These commenters add that FAA procedures have allowed major carriers to expand. Another commenter states that incumbents were given an advantage since they had a large slot base. Other commenters state that it is necessary to increase incumbents' slots so that needed services can be restored.

At the beginning of the Interim Operations Plan, it was necessary for the FAA to take steps to reduce the schedules of air carriers at the 22 controlled airports. This was first accomplished under SFAR 44, issued on August 3, 1981, and implementing Notices to Airmen. These schedule reductions were also included in SFAR 44-1. At a number of airports these reductions averaged 40 percent per hour during most of the day. In some cases, these reductions were over 60 percent.

Beginning with SFAR 44-2, issued on September 29, 1981, which contained procedures for the scheduling period starting on October 25, 1981, the process of allowing carriers to increase their operations began. Under the SFAR 44-2 (first-come-first-serve) and SFAR 44-3 (random draw) procedures, distribution of increased capacity was issued equitably without regard to a carrier's pre-strike base. All carriers were given an equal opportunity to obtain slots.

The FAA agrees that carriers of all kinds have been affected by the reduced operations over the last year. Carriers have been restrained in their plans to grow or modify route systems. They have had limited opportunity to change or add hubs. The fact remains, however, that only one Government action resulted in carriers actually losing existing slots. That action was the mandatory reductions contained in SFARs 44 and 44-1. All carriers were not affected by that action. As the system continues to grow, it is now appropriate to allow those carriers which have been affected by the slot reductions to be given some limited opportunity to restore those reduced slots.

The amendment provides for this limited restoration by giving certain carriers some priority in the selection of slots. At the same time, these provisions contain restrictions to ensure that only a limited number of slots can be obtained in this manner.

To qualify under these provisions, a carrier's September 1, 1981 base will be compared to the carrier's base at the time of the slot selection sessions (for the first session, the base will be the August 20, 1982 base) at all controlled airports. Each incumbent carrier which at the time of the slot selection session has in its base at least 5 fewer slots at those airports than in its September 1, 1981 base will be given a priority. A number of commenters suggest that whether a carrier is determined to be impacted should be made at each controlled airport. The FAA disagrees. A comparison of a carrier's August and September bases at one isolated airport is not an accurate measure of "impaction." The CAB, in its comments, states that it is opposed to an impacted carrier provision, however, if one is adopted, they state that it should be measured at all controlled airports. They add that this would tend to give a more balanced and objective assessment of the relative effects on individual carriers.

This provision is incorporated to restore slots which were actually taken away from carriers. Therefore, carriers which have lost slots because of their own actions, will not be able to utilize this priority to obtain those slots. Thus, a carrier's September 1981 base will be reduced by the number of slots it has sold and slots it has traded in excess of the number obtained in trades. Likewise, a carrier's August 1982 base will include all slots a carrier has traded for or purchased. The following explains this provision:

> Carrier A's September 1981 base is 245. It sold 22 slots; therefore, the base is reduced by 22 (245-22) to 223. In addition, the carrier obtained 15 slots by trading 40. Therefore, its base is reduced by 25 (40-15) to a final September 1981 base of 198 (223-25).

Carrier A's September 1981 base of 198 slots is then compared to its August 20, 1982 base. If the carrier is 5 or more slots below that September base, then it qualifies as an impacted carrier. For example, if the carrier has 178 slots in its August 1982 base, then it qualifies (198-178 for a difference of 20) as an impacted incumbent. However, if the carrier has 195 slots in its August base (198-195 for a difference of 3), it does not qualify as an impacted carrier.

Each carrier's base could change after each slot session. Therefore, the number of carriers determined to be impacted could also change.

If a carrier is determined to be "nationally impacted," it will move to the head of the priority selection list for the selection of two of the slots it is entitled to during the first selection sequence. The priority selections can only be utilized at a controlled airport at which its August 1982 base is below its September 1981 base. The following explains this provision:

> Carrier A is determined to be nationally impacted and is entitled to 4 slots in the first selection sequence (based upon the number of controlled airports where the carrier operates). Therefore, Carrier A will get a priority selection for 2 of its 4 slots. If Carrier A is 35th on the priority selection list, it will select 2 slots prior to all other carriers and will select 2 slots as the 35th carrier to select. If Carrier A is only below its September 1981 base at airport XYZ and slots are not available at that airport, then the carrier does not get a priority and will select all 4 slots as the 35th carrier.

If more than one carrier is determined to be nationally impacted under this provision, the order of selection will be the order in which the qualifying carriers are under their September 1981 base. The carrier with the largest number of slots below that base will select first.

To ensure that this impacted priority will not result in other carriers not being able to obtain slots at controlled airports, not more than 30 percent of available slots at any particular airport can be obtained through the use of this priority. With these limitations, the vast majority of all slots will be available to all carriers.

As a further limitation, a slot obtained as a result of a priority selection cannot be traded.

This provision does not apply to cargo operators. The CAB, in its comments, states that those operators have more flexibility in selecting slots and, in general, they operate in hours during which the demand for slots has been significantly lower than during other hours. In this connection, although requests for additional flight requests will not be accepted by the FAA between schedule periods, such requests will be accepted for requests for arrival approvals between 12:01 a.m. and 4:59 a.m., local time. This should assist cargo operators.

New Entrants

The NPRM proposed to distribute 30 percent of slots to new entrants—carriers that did not operate at any controlled airport before January 1, 1981. A number of commenters suggest that the definition be expanded to include additional carriers. Other commenters state that the definition should be narrowed.

Data has not been presented that shows these carriers should receive special consideration. Most commenters have admitted that all have been adversely affected in the same way as a result of slot limitations.

A definition of "new entrant" which would be consistent with comments received would result in a large number of carriers being eligible for a limited pool of slots. In addition, it would significantly reduce the number of slots available for all other carriers. For this reason, this amendment does not contain a special priority for new entrants.

The FAA does believe, however, that some special but limited consideration should be given to carriers not currently holding slots. A carrier that is not operating at any airport on or before August 1, 1982, has appropriate CAB authority, and has applied for an FAA certificate is a new entrant. A new entrant will be allowed four slot selections in the first selection sequence during each session and two slots in each subsequent round. In addition, new entrants are permitted to pass in up to two consecutive selection sessions, although other carriers cannot pass in consecutive sessions. These provisions should enable new entrants to obtain enough slots to begin operation. Some commenters state that new entrants should be able to defer their operation of slots for periods up to 180 days. This would result in unutilized slots. This would not be in the public interest and, therefore, such a special deferral is not adopted.

Use of Lose Provision

SFAR 44-3 contains the following provision (paragraph 3(a) of the Appendix):

> Slot allocations which a carrier does not actually use at least 70 percent of the schedule allocated for any full schedule period will be revoked.

The NPRM proposed to modify that provision to state:

> Slot allocations that a carrier does not actually use 70 percent of the schedule period will be automatically revoked.

A number of commenters state that basing the "use or lose" provision on the schedule period (2-month period) as opposed to basing it on the carrier's schedule is unnecessarily harsh. They state that this would penalize carriers with small fleets of aircraft because they cannot readily substitute aircraft. Other commenters, including some airport operators, believe this provision should be strictly applied.

The FAA believes that it is contrary to the public interest to allow allocated slots to be unused during large portions of a scheduling period. For this reason, the rule is based upon usage of slots during the schedule period. The FAA recognizes, however, that a 70 percent requirement means that slots would be required to be utilized 5 days per week during the entire schedule period. This provision would be particularly burdensome on smaller carriers which operate less than 6 days per week. Therefore, the use or lose provision will be based upon operation of 57 percent of the schedule period. This means that slots must be utilized on an average of 4 days per week. Under this provision, the agency will be in a position to cancel slots during a particular schedule period. It will no longer be necessary to wait until the period is complete to take such actions.

Trade of Slots

The FAA has reviewed the issue of slot trades. A number of commenters state that the agency should lift restrictions on trades. The FAA believes that carriers should be given maximum flexibility in selection of slots and in setting routes. In addition, new computer programs have been completed which provide FAA must greater capability to evaluate air operations using the Air Traffic Control System. Therefore, the agency, on August 4, 1982, issued a Notice of Policy removing most restrictions on slot trades. Those policies are repeated in this document. The following policies apply to slot trades:

1. Slots at controlled airports may be traded for slots at other controlled airports or for slots at centers.

2. Center slots may be traded for slots in other centers.

3. Slots in a carrier's current base or slots which have been awarded to a carrier for a future period may be traded for other slots.

4. Slots previously awarded as Braniff slots (designated by "DS") may be traded for non-Braniff slots. The Braniff slot must continue to be designated by "DS." Carriers which obtain slots designated by "DS" are reminded that these slots are temporary slots and may be withdrawn. Carriers are reminded to review SFAR 44-4.

5. Carriers may trade slots in any numbers, not necessarily on a slot-for-slot basis. However, a trade must involve at least one slot from each carrier participating in a trade.

In addition, the FAA will allow a carrier to trade for another carrier's selection position in a slot selection session.[4] Thus, if Carrier A has position No. 5 in the draw, it may trade its position to Carrier B which is No. 51. If that trade occurs, Carrier B will select 5th, while Carrier A will select 51st. A carrier can also trade its slot selections for the next slot selection session to another carrier. There are two exceptions to this. First, if a "new entrant" trades its slot selections, it loses its extra slots (third and fourth slots) which it has in the first selection sequence as a result of being a new entrant. Secondly, a carrier entitled to more than two slots in the first selection sequence loses the slots it is entitled to over two in the first selection sequence (based upon number of controlled airports at which it operates) if it trades its slot selections.

In order to receive approval for any trade, requests for approvals must be submitted in accordance with the following terms, which are basically the same as those that have been in effect since May 10.

a. All requests for approval must be submitted in writing to the Associate Administrator for Policy and International Aviation, API-1, 800 Independence Avenue, S.W., Washington, S.C. 20591, in the same format as slot requests submitted under SFAR No. 44-3. Exchange requests combined with other requests under the SFAR (such as slides) will not be accepted.

b. Written evidence of both carriers' consent to the exchange must be provided.

c. A record of the exchange will be made available to the public.

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[4] If the carriers involved in a trade of selection positions are not entitled to the identical number of slots during the first slot selection sequence, then the carrier with the higher number of slots will only be able to change selection position for the same number of slots to be utilized by the other carrier. The remaining slots will be selected in accordance with former priority. For example, Carrier S and Carrier T trade positions. Carrier S has 24th priority and is entitled to two first sequence slots while Carrier T is entitled to four slots and has 52nd priority. As a result of the trade, the new carrier priority is as follows:

24th priority—Carrier T—2 slots
25th priority—Carrier X
26th priority—Carrier Y
—
52nd priority—Carrier S—2 slots
Carrier T—2 slots

d. Exchanges of slots necessary for the provision of essential air service within the meaning of Section 419 of the Federal Aviation Act of 1958, as amended, U.S.C. 1389, will not be approved.

e. If the slots being traded are ones acquired subsequent to May 1982, the carriers must present evidence that such slots are in their base. Acceptable evidence would include a telex from the FAA or other FAA documentation authorizing slots.

f. All requests for approval of a trade of a Braniff slot must specifically acknowledge the carrier will relinquish the slot in the event it is recalled as specified in SFAR 44-4 and a statement from the carrier obtaining the slot that it understands that the slot is temporary and may be withdrawn.

Carriers are reminded that certain ARTCCs are operating at their current capacity levels. Requests for approval of trades which will increase workloads at those centers (including overflights) above a level which can be safely handled by the work force, as determined by the Administrator, may be denied. The centers which are currently working at or near capacity are Chicago, Cleveland, Indianapolis, and New York. This list may change as staffing changes. The list will be modified as necessary. This restriction does not mean that all trades of slots within those centers will be disapproved. It means, however, that new arrivals or departures within certain sectors of those centers may not be approved. If a request for approval cannot be approved for this reason, the carriers involved will be given an opportunity to amend their submittal.

All carriers are asked to minimize new operations within these centers. The FAA is making every attempt to improve staffing at these locations. Until that occurs, however, the users' efforts to avoid those centers will be appreciated.

Written approval must be obtained from the FAA before slots may be used. The FAA anticipates that properly documented exchange requests will be approved within 2 weeks of the receipt of a request.

The FAA will continue to evaluate the slot transfer policy to determine whether changes are warranted before July 1, 1983. Any further comments on the matter should be directed to Docket No. 22050.

All interested parties are again reminded that a slot is a temporary creation of FAA emergency regulations and does not confer on any carrier a long-term right. Slots can be taken from any carrier in accordance with the terms of the existing SFAR or any amendments to it. Moreover, the FAA does not guarantee that slots will be required at any airport for any particular period of time. As soon as possible, the FAA intends to relieve the carriers from the requirement of obtaining slots.

Carriers are reminded that by "Notice of Suspension of Policy," issued on July 6, 1982, the FAA terminated all authority to sell slots. That prohibition continues.

In addition, carriers are allowed to transfer slots from any controlled airport to any other airport within the same center. There remains a prohibition on transferring non-controlled airport slots to controlled airports.

Change of Controlled Airports and Centers

Washington National Airport is no longer considered to be a controlled airport under the Interim Operations Plan. Allocation of slots at National will be accomplished in accordance with the High Density Rule (14 CFR, Part 93, Subpart K). The FAA expects that the Scheduling Committees will handle hourly allocations there.

In addition, flights within and between the Seattle and Salt Lake Centers no longer need slots. However, operations to one of those two centers originating outside of either center must have a slot for the arrival airport.

Joint Ownership

A number of questions have arisen during past slot allocations concerning whether corporately related carriers are entitled to select slots as separate entities. A rule which would allow carriers to form separate entities solely to obtain slots would create enormous inequities. Therefore, some control of this type of arrangement is necessary. Air carriers that function as one entity will be considered to be a single air carrier. To accomplish this, if an air carrier has more than 50 percent ownership or control of one or more other air carriers, the carriers will be considered to be a single air carrier for slot selection purposes. Similarly, if two carriers merge, they will be considered to be one carrier. In order to prevent carriers from creating a holding company or similar corporate mechanism to avoid this limitation, an additional restriction is applied to newly created corporate structures. Therefore, if a single company should be created with more than 50 percent ownership or control of two or more air carriers or a company should obtain such control or ownership, the air carriers owned or controlled will be considered to be a single air carrier for slot selection purposes.

Immediate Adoption of Rule

Those carriers affected by this rule have almost uniformly expressed a desire to obtain additional slots as early as possible prior to the scheduling period to facilitate their flight scheduling. Because of this, expedited action is essential and good cause exists for making this rule effective immediately.

Adoption of the Rule

Chapter I of Title 14 of the Code of Federal Regulations is amended effective August 12, 1982.

1. Special Federal Aviation Regulation 44-3 is rescinded.
2. A new Special Federal Aviation Regulation 44-5 is issued.

(Secs. 307(a) and (c), 313(a), and 601(a), Federal Aviation Act of 1958, as amended (49 U.S.C. Sections 1348(a) and (c), 1354(a), and 1421(a)); Sec. 6(c), Department of Transportation Act (49 U.S.C. Section 1655(c)).)

NOTE: The FAA has determined that this proposal will expand the number of carriers eligible for a limited number of priority slots at various airports within the contiguous United States without affecting the number of slots currently held by any carrier. There are no apparent direct or indirect (non-industry) costs associated with the amendment, and the FAA is unaware of any specific data to indicate that these amendments would have more than a minimal economic impact. Therefore, the preparation of a full regulatory evaluation is unnecessary.

Based on the above, it has been determined that this is not a major regulation under Executive Order 12291 and I certify that, under the criteria of the Regulatory Flexibility Act, the proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. In addition, the FAA has determined that this amendment is not significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Special Federal Aviation Regulation 44-5
Air Traffic Control System Interim Operations Plan

Adopted: September 27, 1982   Effective: September 27, 1982

(Published in 47 FR 43278, September 30, 1982)

SUMMARY: This amendment to Special Federal Aviation Regulation (SFAR) No. 44-5, which established procedures to be used in the allocation of additional air traffic system capacity as it becomes available, makes adjustments to the procedures utilized for allocation of slots. It changes the time periods in which carriers must select slots as well as establishing "passing" procedures. The amendment is necessary to respond to problems and questions that arose during the slot selection session.

ADDRESSES: Send comments on the rule in duplicate to:

Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-204), Docket No. 22050, 800 Independence Avenue, S.W., Washington, D.C. 20591.

or deliver them to:

800 Independence Avenue, S.W.
Room 915G
Washington, D.C.

Comments may be examined in the Rules Docket, weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

FOR FURTHER INFORMATION CONTACT:

Edward P. Faberman
Deputy Chief Counsel
202-426-3775

or

Thomas P. Messier
Deputy Director, Office of Aviation Policy and Plans
202-426-0583

Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

SUPPLEMENTARY INFORMATION:

Comments Invited

Although this is issued as a final rule, comments are invited on the amendment. Comments relating to the environmental, energy, or economic impacts that might result from adoption of the proposals contained in this notice are invited. Communications should identify the regulatory docket and be submitted in duplicate to the address above. All communications received will be considered by the Administrator on a continuing basis. The requirements contained in this amendment may be changed in the light of comments received. All comments submitted will be available in the Rules Docket for examination by interested persons. A report summarizing each substantive public contact with FAA personnel concerned with the rulemaking will be filed in the docket. Commenters wishing to have the FAA acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 22050." The postcard will be dated, time-stamped, and returned to the commenter.

Background and Discussion

On August 9, 1982, the FAA issued SFAR 44-5 (47 FR 35156; August 12, 1982) which established procedures to be used in the allocation of additional air traffic system capacity as it becomes available. The amendment established a slot selection system which allowed carriers to choose slots they desire from those available during a slot selection session.

On August 20, 1982, the FAA conducted a random draw to determine the order of selection for all future allocation periods. On August 25-26, 1982, the agency held a slot selection session. During that session, a number of questions were raised concerning the slot selection procedures. As a result of these questions and other issues that have arisen since issuance of SFAR 44-5, it is necessary to adjust the existing procedures prior to the next scheduled slot selection session.

5-Minute Selection Requirement

Under SFAR 44-5, a carrier is required to make its slot selection within 5 minutes after its turn is called or it will lose its turn. At the August slot selection session, there were a number of carriers which did not make selections. These carriers either did not appear at the session or left the session after an early sequence. Because of the 5-minute requirement, the session was interrupted for 5 minutes for each missing carrier to see if that carrier was, in fact, participating in the session. Since this occurred numerous times, a great deal of time was wasted. To rectify this, the 5-minute requirement is amended. A carrier still has 5 minutes to make its selection. However, if the carrier is not prepared to make its selection within 1 minute after its turn is called, it must answer "present." If the carrier does not answer "present" within 1 minute after its turn is called, the carrier will lose its turn in that round. If the carrier answers "present," it still must make its slot selection within a total of 5 minutes after its turn is called.

New Entrant Definition

SFAR 44-5 defines "new entrant" as a carrier that is not operating at any airport on or before August 1, 1982, has appropriate Civil Aeronautics Board (CAB) authority, and has applied for an FAA certificate. An unanswered question was—"At what point can a 'new entrant' be added to the priority selection list?"

In determining when an applicant has applied for an FAA certificate, the agency has stated the following:

A formal application for a certificate is not complete or considered submitted until the applicant has presented to the FAA District Office such items including the following:

1. Compliance statement.
2. Aircraft operating manuals.
3. Company operating manuals.
4. Training programs.
5. Maintenance programs.
6. Schedule of events, such as:
   (a) Proving runs;
   (b) Aircraft deliveries;
   (c) Training complete dates;
   (d) Emergency evacuation demonstration; and
   (e) First revenue trip.

By submitting this information (if carrier has met other criteria) the carrier would be considered as a new entrant and thus would be able to obtain slots. The FAA recognizes, however, that it is not necessarily equitable to require a new entrant to complete submission of all such material before it can be added to the selection list. Therefore, the agency will allow an applicant to be added to the priority list if it has an appropriate CAB certificate, has not operated at any airport on or before August 1, 1982, and has submitted at least one of the six categories of documentation listed above. Although the applicant will be added to the priority list, it will not be able to select slots until it has submitted all the required information as listed above. Such an applicant cannot trade its selection position.

Use or Lose Provision

SFAR 44-5 states that slots that a carrier does not actually use at least 57 percent of the schedule period will be automatically revoked. This means that slots must be utilized on an average of 4 days per week. The FAA believes that there is one situation in which it is appropriate to provide some relief from this requirement. This area involves carriers that only operate a seasonal operation a few days a week or for a part of a schedule period. An example of this would be a situation in which a carrier operates Thursday, Friday and Saturday flights into Denver during the winter months. The carrier has a slot which it wishes to dedicate to this operation. The slot is operated every January-March. It will obviously not use the slot 57 percent of the schedule period. This limited number of seasonal carriers should be able to obtain some relief from the use or lose provision. Thus, if a carrier wishes to use a slot for a seasonal operation (carrier has the burden of showing that that operation has been historically seasonal) for less than 57 percent of the schedule period, the carrier can obtain a written waiver from this provision from the Associate Administrator for Policy and International Aviation (API-1). To obtain the waiver, the carrier must submit, in writing, the following information:

1. The slot or slots in question;
2. The operation for which the slot will be utilized;
3. The number of days in which the operation will be conducted; and
4. The basis for which the operation is considered to be historically seasonal.

If this information is acceptable, API-1 will provide the carrier with a written waiver which will allow the carrier to operate the particular slot less than 57 percent of the schedule period. The FAA will submit the remaining days not in use to the Central Flow Control facility to allow the slot to be used for charter and extra sections during the remainder of the unused schedule period.

Carriers are reminded that if they wish to obtain slots for 1 or 2 days a week, they must obtain those slots directly from Central Flow Control as available.

Trade of Slots

SFAR 44-5 reminded carriers that the prohibition against selling slots was continued. To verify that slots involved in a trade were not involved in a sale, the agency believes it appropriate for the carrier obtaining the slot to make an affirmative statement that the transaction did not involve consideration other than slots. Thus, such a statement must be submitted to API-1 in accordance with any request for approval for any trade of slots or position in the slot selection process by a principal of that airline. The FAA's policy on trade of slots has been approved by the Office of Management and Budget through June 30, 1982.

Passing

SFAR 44-5 provides for "passing." An air carrier deciding not to select slots may advise the FAA, prior to that carrier's first opportunity to select slots, that it will "pass." If a carrier passes from one session to the next, it will be placed at the top of the appropriate pass list for the next selection session.

One question that arose during the first slot selection was whether an impacted incumbent could pass. The answer to that question is yes. An impacted incumbent may pass its two "impacted" selections from one selection session to the next. An impacted incumbent who elects to pass will be placed on the "impacted incumbent pass list" for the next session. Impacted incumbents are reminded that they do not have to select slots as an impacted incumbent and, instead, may defer their selection until they come up in the regular selection order.

In this connection, carriers are reminded that during any slot selection sequence after their turn is called, they may defer without passing. This means that they will not select a slot during that sequence but may select a slot in a later sequence. A carrier that defers remains in the same selection position.

One additional clarification is necessary in connection with "passing." The order of sequence carriers held when they passed will determine the order in which they will select slots in the next session. This eliminates any race to pass by hand-delivering a "pass" notice to the FAA. The rule has been changed accordingly.

Seasonal Operations

There are a number of carriers which conduct operations during a limited time period that are considered to be seasonal operations. These operations are often to resort areas during either the winter or summer months. The FAA acknowledges that there must be some adjustments to the slot base of these carriers to allow them to continue operations which they have historically flown. In some situations a carrier will actually cease the operation after the summer and will operate elsewhere in the winter. If a carrier is not permitted to obtain slots for such seasonal operations, it may not be able to continue in business. Therefore, the FAA will, in certain cases, adjust a carrier's base if that carrier establishes that an adjustment is necessary for it to conduct a seasonal operation which it has historically operated. In accomplishing this, the following factors will be considered: (1) The slots necessary to conduct the seasonal operation; (2) Whether the operation has been flown at least one previous year; (3) The seasonal operation is for a continuous period of six months or less; (4) A carrier no longer has in its base slots used for this seasonal operation; (5) The seasonal operation is a major part of the carrier's overall operation; (6) The carrier has fewer slots in its base at the airport at which the seasonal operation is proposed than it did when the seasonal operation was previously conducted, adjusted to take into account any slots the carrier may have sold or traded.

A carrier which has a significant number of slots will not be given seasonal slots. The intent of this provision is to allow the agency to increase the base of a carrier which is dependent upon a seasonal operation. If a carrier does meet the above criteria every attempt made will accommodate the carrier without lessening the number of slots available at the slot selection session.

SFAR 44-5 requires air carriers to submit charter, extra section, emergency, ferry, pilot training, and mechanical repair checkout flight requests to the FAA Central Flow Control Facility. The number of these types of operations has remained consistent during the past several months. These operations are conducted throughout the day at many airports. The total number of such flights does not place a burden on the system. Therefore, the FAA is removing the need to obtain any slot authority for non-passenger ferry flights, pilot training, and mechanical repair checkout operations. It will still be necessary to obtain Central Flow approval for charter and extra section operations.

This action is consistent with a petition for rulemaking dated September 2, 1982, by the Air Transport Association of America. The other proposals contained in their petition will not be acted upon at this time, but will be considered as part of the agency's continued review of the system.

The agency will closely monitor operations under this amendment. If this authority is not strictly adhered to, the agency will reconsider this change.

Change of Controlled Airports and Centers

Effective September 21, 1982, flights within the Washington Center no longer need slots. However, an operation to an airport within the Washington Center from an airport outside of the Center, e.g., from JFK to BWI still requires a slot at the arrival airport, in this case BWI.

Immediate Adoption of Rule

This rule involves a number of procedural changes to existing allocation procedures which are necessary to clarify those procedures. It is necessary for these changes to be made before the next slot selection. Therefore, I find that further notice and public procedure thereon are impracticable and contrary to the public interest. I further find that good cause exists for making this regulation effective in less than 30 days after its publication in the FEDERAL REGISTER.

Adoption of the Rule

The Appendix to Special Federal Aviation Regulation 44-5 in Chapter I of Title 14 of the Code of Federal Regulations is amended effective September 27, 1982.

(Secs. 307(a) and (c), 313(a), and 601(a), Federal Aviation Act of 1958, as amended (49 U.S.C. Sections 1348(a) and (c), 1354(a), and 1421(a)); Sec. 6(c), Department of Transportation Act (49 U.S.C. Section 1655(c)).)

NOTE: The FAA has determined that this rule is only a clarifying amendment in that it adjusts the procedures utilized during the slot selection process. It is consistent with previous interpretations given at the selection sessions. There are no apparent direct or indirect (non-industry) costs associated with the amendment. Therefore, the preparation of a regulatory evaluation is unnecessary.

Based on the above, it has been determined that this is not a major regulation under Executive Order 12291 and I certify that, under the criteria of the Regulatory Flexibility Act, the rule will not have a significant economic impact on a substantial number of small entities. In addition, the FAA has determined that this amendment is not significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Special Federal Aviation Regulation 44-5

Air Traffic Control System Interim Operations Plan

1. Each person shall, before conducting any operation under the Federal Aviation Regulations (14 CFR Chapter I), familiarize himself with all Notices to Airmen issued under § 91.100; when activated, with the provisions of the National Air Traffic Control Contingency Plan (FAA Order 7110.86), available for inspection at operating Air Traffic facilities and Regional Air Traffic Division Offices; and with all other available information concerning that operation.

2. Notwithstanding any provision of the Federal Aviation Regulations to the contrary, no person may operate an aircraft in the airspace under the jurisdiction of the United States—

(a) Contrary to any restriction, prohibition, procedure or other action specified in this Special Federal Aviation Regulation (SFAR) or specified by the Director of the Air Traffic Service pursuant to paragraph 3 of this regulation and announced in a Notice to Airmen pursuant to § 91.100 of the Federal Aviation Regulations; or

(b) If the National Air Traffic Control Contingency Plan is activated pursuant to paragraph 5 of this regulation, except in accordance with the pertinent provisions of the Contingency Plan (FAA Order 7110.86, dated February 27, 1981, as amended by Errata Change issued March 10, 1981, Errata Change No. 2 issued March 18, 1981, and Errata Change No. 3 issued June 19, 1981).

3. As conditions warrant or until activation of the National Air Traffic Control Contingency Plan (Phase III), the Director of the Air Traffic Service is authorized to—

(a) Restrict, prohibit or permit VFR and/or IFR operations at any airport, Terminal Control Area or other terminal and enroute airspace (subject to any restrictions and limitations imposed under paragraph 4 of this regulation);

(b) Give priority at any airport to flights that are military necessities, medical emergency flights, Presidential flights, and flights transporting critical Federal Aviation Administration employees; and

(c) Implement at any airport or within enroute airspace flow control management procedures, including reduction of flight operations. Reduction of flight operations shall, to the extent feasible, be made pro rata among and between air carrier, commercial operator, and general aviation operations.

4. As conditions warrant or until activation of the National Air Traffic Control Contingency Plan (Phase III), API-1 is authorized to implement reductions in air carrier schedules in accordance with the Appendix to this regulation, as air traffic capacity requires, if operations at an airport cannot be safely and efficiently handled by the controller work force at the air traffic control facilities involved, and limit the number of daily and hourly operations of an air carrier at any airport.

5. If the actions taken in accordance with paragraphs 3 and 4 of this regulation do not provide for the orderly movement of air traffic, the Director of the Air Traffic Service may activate the National Air Traffic Control Contingency Plan (Phase III).

6. Upon activation of the National Air Traffic Control Contingency Plan (Phase III) and notwithstanding any provision of the Federal Aviation Regulations to the contrary, the Director of the Air Traffic Service is authorized to suspend or modify any airspace designation (or chart).

7. All restrictions, prohibitions, and procedures established, and other actions taken by the Director of the Air Traffic Service under this regulation with respect to the operation of the Air Traffic Control System will be announced in Notices to Airmen issued pursuant to § 91.100 of the Federal Aviation Regulations.

8. The Director of the Air Traffic Service and API-1 may delegate their authorities under this regulation to the extent they consider necessary for the safe and efficient operation of the National Air Traffic Control System.

Appendix To SFAR 44-5

Arrival Approvals for Designated Airports

1. For operations after October 30, 1982—

(a) Except as modified pursuant to paragraph 2 of this Appendix:

(i) The number of daily arrival operations an air carrier may schedule or operate at a controlled airport (as identified in this Appendix) shall not exceed its FAA-approved daily and hourly allocation total at that airport for the previous schedule period; and

(ii) The number of daily arrival operations an air carrier may schedule or operate at any other airport shall not exceed its FAA-approved daily allocation total at that individual airport for the previous schedule period.

(b) Each air carrier that desires to take part in the selection session for additional slots must notify, in writing, the Office of the Chief Counsel, Docket Section, AGC-204, 800 Independence Avenue, S.W., Washington, D.C. 20591. The notification must be received not later than 72 hours before the beginning of the slot selection session (for the first session, notification must be received by 5:00 p.m. on August 17, 1980). The notification shall state the schedule period for which the air carrier desires slots and shall identify the individual or individuals who will represent the carrier in the slot selection session. Once a notification is submitted for one schedule period, additional notification need not be submitted unless the carrier changes its representatives.

(c) Slots allocated in accordance with SFAR 44-4 shall be considered to have been allocated under this Appendix.

2. Additional capacity allocation.

(a) Unless directed by the CAB (in cases of essential air service or to satisfy some other CAB requirement) or unless the FAA determines that a carrier has exceeded the number of operations allowed by this regulation, a carrier will not be required to give up slots for another carrier's use. However, slots that a carrier does not actually use at least 57 percent of the schedule period will be automatically revoked. Upon a showing by the carrier that an operation is historically seasonal, API-1 may grant a waiver from the 57-percent requirement.

(b) For the purposes of additional capacity allocations under this SFAR: (1) An air carrier that was operating at one of the 21 controlled airports listed at the end of this Appendix on August 1, 1982, is an "incumbent" at that airport; and (2) an air carrier that is not operating at any airport on or before August 1, 1982, has appropriate Civil Aeronautics Board authority, and has applied for an FAA certificate, is a new entrant. If an air carrier has more than a 50-percent ownership or control of one or more other air carriers, the carriers shall be considered to be a single air carrier under this Appendix. In addition, if after August 10, 1982, a single company obtains more than 50 percent ownership or control of two or more air carriers, those air carriers shall be considered to be a single air carrier under this Appendix.

(c) A random drawing will be held on August 20, 1982, to determine the order of selection for all future allocation periods. Included in the drawing will be all air carriers that have designated a representative in accordance with paragraph 1(b) of this Appendix. A carrier which asks to be included in a slot selection session after the draw is held will be added to the end of the selection list. The slots to be awarded through this process are only for scheduled service.

Slots for charter operations will be allocated in accordance with paragraph 4 of this Appendix.

(d) Approximately 55 days before the beginning of a schedule period, the FAA will conduct a slot selection session to determine which air carriers will obtain new slots to be added to the system for that particular schedule period. The approximate number and time of the slots will be announced by the FAA at least 7 days before the slot selection session.

(e) At the slot selection session, subsequent to any allocation specified under paragraph (f) of this Appendix, air carriers may select slots from any controlled airport or center in the order established under paragraph (c) of this paragraph. A carrier must answer "present" or make its selections within 1 minute or it will lose its turn. If it answers "present," the carrier must make its selection within 5 minutes total after its turn is called or it will lose its turn. If capacity still remains after each air carrier on the selection list has had an opportunity to select slots, the allocation sequence will be repeated in the same order. An air carrier may select any two slots available during each sequence, except in the first sequence of each session during which the number of slots an air carrier may select is as follows:

Air carriers operating two or more slots on August— 1, 1982 at each of 0–5 controlled airports.	2 slots
Air carriers operating two or more slots on August— 1, 1982 at each of 6–21 controlled airports.	4 slots
Air carriers defined as new entrants. —	4 slots

An air carrier selecting a slot in an ARTCC shall, at the time of selection, identify the airport within the ARTCC to which the carrier will operate.

An air carrier deciding not to select slots in a particular session must advise the FAA that it has decided to pass before it has selected any slot during that session. Any air carrier "passing" will be given selection priority at the next slot selection session and will remain in that position in future sessions. A carrier cannot pass in consecutive sessions, except for new entrants that may pass in two consecutive sessions. If a carrier does not use its priority selection in the next slot selection session, it will lose that priority selection. A carrier not passing and deciding not to select slots in a particular sequence may "defer" selection in that sequence.

(f) *Impacted Carrier Allocation.* Each incumbent carrier which at the time of the slot selection session has in its base at least 5 fewer slots at the controlled airports[1] than in its September 1, 1981 OAG base will be given a priority during the slot selection process. A Carrier that qualifies to obtain these incumbent priority slots, may select two slots from those available at any controlled airport at which it is below its September 1981 base before any other carrier makes a selection. If more than one carrier qualifies for priority under this paragraph, the order of selection will be based on the number of slots the qualifying carriers are below their September 1, 1981 base, those with the highest numbers selecting first. A carrier selecting a slot under this provision will have an equivalent number of slots subtracted from the number it is otherwise eligible to select during the first slot selection sequence under paragraph (e). For the purposes of this section, a carrier's September 1, 1981 base will be adjusted downward to reflect slots which it has sold, traded (unless traded for identical number of slots), or released. This subparagraph does not apply to cargo operators. Slots selected under this paragraph may not exceed 30 percent of the new/additional slots available at any controlled airport. Slots selected under the provisions of this paragraph may not be traded.

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[1] There are 21 controlled airports identified in the attachment to this Appendix. Washington National Airport is no longer considered a controlled airport.

After the first slot selection session, the order for slot selection will be as follows: (1) Impacted incumbents that "passed" their "impacted incumbent" selections in the previous slot selection session in the order in which they were listed as impacted; (2) impacted incumbents; (3) carriers that "passed" in the previous slot selection section in the order in which they were listed in the selection list; and (4) the carrier following the last carrier to make a slot selection in the previous session.

(g) An air carrier slot allocated at a controlled airport must be used only during the hour in which the slot was assigned at the particular controlled airport. Center slots allocated to an air carrier at a non-controlled airport may be used at any hour at that particular airport and may be transferred to any non-controlled airport in the same ARTCC if written approval is received from API-1.

(h) If Braniff notifies the FAA, in writing, prior to September 15, 1983, that it has obtained the necessary legal approvals to begin operations by November 15, 1983, and if that operation is approved by the Administrator, then Braniff will be allocated the 53 slots withheld from the June 28 slot allocation session. If Braniff does not provide that notice by September 15 or if the Administrator determines that Braniff will not be able to operate by November 15, an allocation will be held to allocate the slots.

3. No new/additional flight requests for changes will be accepted by the FAA between schedule periods except for requests for arrival approvals between 12:01 a.m. and 4:59 a.m., local time. These requests and changes to flight schedules between schedule periods for flight number changes, within hour changes at the same controlled airports (as identified in this Appendix), and hourly changes within the allocated daily total at all other airports will be processed in the order received. Such requests must be sent to API-1.

4. Charter and extra section flight requests shall be made to the FAA Central Flow Control Facility. Non-passenger ferry flights, pilot training and mechanical repair checkout operations may be conducted notwithstanding the limitations contained in this SFAR. Written requests for charter operations may be made to Central Flow Control up to 70 days in advance of the scheduling period in which the operation is proposed.

5. No person shall operate an air carrier flight unless approval for the operation has been reviewed prior to the flight by API-1 as part of the particular air carrier's approved schedule or under paragraph 1, 2, 3, or 4 of this Appendix, or in accordance with paragraph 5 of this Appendix.

6. Airports and Air Route Traffic Control Centers at which some constraints are necessary are listed below. This listing also shows those airports in which additional capacity will be available through October 30, 1982. Constraints may also be imposed at airports other than those listed if any changes in the current status of an airport cannot be safely and efficiently handled by the controller work force at the ATC facilities involved. Schedule reductions in effect at an airport may be revised and will be removed to the extent the controller work force at the ATC facilities involved can accommodate those changes.

Individuals interested in obtaining a list of expected capacity at centers and controlled airports may contact:

Marvin Olson
Chief, Aviation Education & Consultative Planning Branch
Office of Aviation Policy and Plans
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591
(202-426-8444)

Special Federal Aviation Regulation 44-6
Air Traffic Control System Interim Operations Plan

Adopted: December 10, 1982 **Effective: December 10, 1982**

(Published in 47 FR 56324, December 16, 1982)

SUMMARY: This Special Federal Aviation Regulation (SFAR) sets forth the procedures for allocation of arrival slots previously allocated which have been returned to the FAA for distribution. Some of these slots were allocated to Altair Airlines. This amendment provides for a distribution in accordance with priority order established under SFAR 44-5 for allocation of available capacity at various airports within the contiguous United States. This amendment is necessary to assure the efficient utilization of the navigable airspace in light of the availability of these slots.

FOR FURTHER INFORMATION CONTACT:

Edward P. Faberman
Deputy Chief Counsel
Telephone: (202) 426-3773

or

Thomas P. Messier
Deputy Director, Office of Aviation
Policy and Plans
Telephone: (202) 426-0583

Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

Comments are invited on this SFAR.

ADDRESS: Send comments on the rule in duplicate to:

Federal Aviation Administration
Office of the Chief Counsel
Attn: Rules Docket (AGC-204), Docket No. 22050
800 Independence Avenue, S.W.
Washington, D.C. 20591

Comments may be examined in the Rules Docket, weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

SUPPLEMENTARY INFORMATION:

Comments Invited

Although this amendment is in the form of an emergency final rule which concerns the safe and efficient use of airspace throughout the United States and, thus, is not preceded by a notice of proposed rulemaking, comments are invited on this Special Federal Aviation Regulation.

The FAA invites comments on the procedures contained in this regulation. Comments are specifically invited on any aspects of the operation of the Air Traffic Control system under this amendment that suggest a need to modify the regulation, or which should be considered should additional procedures be necessary. Comments received will be reviewed on a continuing basis and this amendment may be changed in the light of comments received. Commenters wishing the FAA to acknowledge receipt of their comments in response to this rule must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 22050." The postcard will be date/time stamped and returned to the commenter.

Background

During approximately the last 15 months, the FAA has allocated arrival slots at all airports within the contiguous United States in accordance with promulgated regulations. Under these regulations, an air carrier may not schedule or operate arrival operations in excess of its approved level.

The rules contain a Use of Lose Provision. The provision is based upon operation of 57 percent of the schedule period. Slots not utilized for this period of time are revoked.

During the past several weeks, a number of slots have been revoked under this provision. In addition, Altair Airlines has ceased operation. Finally, some slots have been returned by carriers which have not been able to utilize them.

As a result of this, there is a number of slots which are currently not being utilized. Some of these slots are at congested airports. The next regularly scheduled slot allocation session will not be held until February 1-2, 1983, for the April 24–May 30 schedule period. The FAA recognizes that a number of carriers could use these slots immediately and that delaying allocation of them for 60 days could deprive carriers of needed authority and could deprive the public of necessary service.

For these reasons, the FAA is creating a mechanism for immediate allocation of these slots.

The special allocation will take place on December 22, 1982, at 9:00 a.m. in the FAA Auditorium, Third Floor, at 800 Independence Avenue, S.W., Washington, D.C. A carrier wishing to obtain any of the available slots (as listed in the Appendix to this SFAR) may select slots at this special session.

All parties are advised that the listing of available slots in the Appendix to this SFAR may be modified on the day of the slot session to include additional slots if they become available.

The order in which this additional capacity will be allocated will be as followed:

(1) Carriers that "passed" in the previous slot selection session in the order they passed.

(2) The carrier following the last carrier to make a slot selection in the previous session.

On December 22, carriers will be called in this order. Carriers which are present at the session and decide to select slots will be allocated slots. Carriers will be eligible to select slots in accordance with paragraph 2(e) of the Appendix to SFAR 44-5. A carrier selecting slots on December 22 will be treated as though it had made those selections at the next scheduled slot allocation session.

As to the arrival slots previously allocated to Altair Airlines, Inc., those slots are allocated on a temporary basis only subject to revocation. The slots are for up to a 120-day period only. During that time, Altair's Chapter 11 proceedings will be closely monitored.

If Altair does again operate, then the slots necessary for continued Altair operations will be returned to Altair. The carriers should be able to use these slots for 120 days, but all parties are put on notice that the award of these slots may be revoked upon 24-hour notice. Carriers should not apply for these slots unless they will be in a position to operate under these conditions. At no later than the end of that 120-day period, this temporary approval may be extended or a longer term allocation procedure for the particular slots may be promulgated.

Carriers may ultilize slots allocated under this SFAR immediately. They are reminded that all slots allocated under this SFAR must be used at least 57 percent of the period from February 15 to April 23 or they will be automatically revoked. After April 23, they must be used in accordance with paragraph 2(a) of the Appendix 44-5.

All carriers are reminded that slots are temporary creations of FAA emergency regulations and do not confer on any carrier a long-term right. Slots can be taken away from any carrier in accordance with the terms of any applicable regulation.

All future submissions made to the FAA shall separately identify Altair slots by the designator "PH."

The following demonstrates how the allocation on December 22, 1982 will work:

(a) Carriers	Slot Eligibility
F (passed in previous session)	2
L (new entrant)	4
A (operates at 12 controlled airports)	4

(b) On December 22, carriers select as follows:

Carriers	Passing Carriers	1st Sequence	2nd Sequence	3rd Sequence
F	2	2	2	—
L		4	—	—
A		4	2	2

(c) At next sequence—

Carrier F = Lost status as "passing" carrier and will not be able to select slots until 3rd sequence.

Carrier L = Will not be able to select slots until 2nd sequence.

Carrier A = Will not be able to select slots until 3rd sequence.

A carrier which selects slots on December 22 cannot "pass" at the next slot selection session.

Only carriers which were eligible to select slots at the last session are eligible to select slots on December 22.

The basic rules and orders necessary for operation under the Interim Operations Plan will continue to be disseminated, in accordance with section 91.100 of the Federal Aviation Regulations, by Notices to Airmen (NOTAM).

This SFAR does not change the procedures contained in SFAR 44-5 for the allocation of slots during the allocation periods set forth in that SFAR.

The continued operation of the National Air Traffic System in a safe and efficient manner requires the immediate adoption of this regulation in the public interest. Therefore, I find that further notice and public procedure thereon are impracticable and contrary to the public interest. I further find that good cause exists for making this regulation effective in less than 30 days after its publication in the *Federal Register*.

Adoption of the Rule

Accordingly, 14 CFR Part 91 is amended by issuing Special Federal Aviation Regulation No. 44-6 effective December 10, 1982.

(Secs. 307(a) and (c), 313(a), and 601(a), Federal Aviation Act of 1958, as amended (49 U.S.C. Sections 1348(a) and (c), 1354(a), and 1421(a)); Section 6(c), Department of Transportation Act (49 U.S.C. Section 1655(c)).)

NOTE: The FAA has determined that this rule is an emergency regulation under the provisions of Section 8 of Executive Order 12291 and the Department's Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). It is impracticable for the FAA to follow the procedures of Executive Order 12291 applicable to regulations not issued in response to emegency situations because the safety and efficiency of the national air transportation system and the public interest require immediate implementation of the rule. Voluntary compliance with this regulation is expected. If this action is subsequently determined to involve a significant regulation, a final regulatory evaluation or analysis will be prepared and placed in the regulatory docket (otherwise, an evaluation is not required). A copy of it, when filed, may be obtained by contacting the persons identified under the caption "FOR FURTHER INFORMATION CONTACT."

Special Federal Aviation Regulation 44-6

1. For arrival slots to be allocated on December 22, 1982—

(a) Each air carrier seeking authority for slots available in this special allocation as identified in the Appendix to this SFAR shall have its representative (as designated in accordance with paragraph 1(b) of the Appendix to SFAR 44-5) attend a special slot allocation session in the FAA Auditorium, Third Floor, at 800 Independence Avenue, S.W., Washington, D.C., on December 22, 1982.

2. On December 22, a special slot allocation session will be held. The order of slot selection at this special session will be as follows:

(a) Carriers that "passed" in the previous slot selection session in the order they passed.

(b) The carrier following the last carrier to make a slot selection in the previous session.

3. As a carrier's name is called in accordance with the priority set forth in paragraph 2, a carrier will be entitled to select slots in accordance with paragraph 2(e) of the Appendix to SFAR 44-5. If a carrier representative appears at the session, it may select slots available. A carrier will only be called for selection if it has registered at the session. A carrier must answer "present" or make its selection within 1 minute or it will lose its turn. If it answers "present," the carrier must make its selection within 5 minutes total after its turn is called or it will lose its turn. If capacity still remains after each air carrier on the selection list has had an opportunity to select slots, the allocation sequence will be repeated in the same order.

4. A carrier selecting slots under this SFAR shall be determined to "defer" an identical number of selections at the next slot allocation session. A carrier selecting slots under this SFAR cannot "pass" at the next slot selection session.

5. The slots allocated under this SFAR which were previously allocated to Altair Airlines will be for a period of up to 120 days from December 22, 1982, and may be cancelled by the FAA at the end of that 120-day period or during that period upon 24-hour notice. The temporary approval for these slots may be extended at the discretion of the Administrator. In all future submissions to the FAA, these slots shall be designated by the letters "PH".

6. All arrival slots allocated in accordance with this SFAR may be used immediately but must be used at least 57 percent of the period February 15 to April 23 or they will be automatically revoked.

7. No new/additional flight requests for changes will be accepted by the FAA in a submittal made in accordance with this SFAR.

8. No person shall operate an air carrier flight unless approval for the operation has been received in writing prior to the flight by the Associate Administrator for Policy and International Aviation (API-I) as part of the particular air carrier's approved schedule, under SFAR 44-5, or in accordance with the Appendix.

Appendix to SFAR 44-6 Issued December 10, 1982

ARRIVAL SLOTS AVAILABLE WITHIN FAA CENTERS
EFFECTIVE DECEMBER 22, 1982

ARTCC	*SLOTS* *	
Albuquerque [1]	17	
Atlanta [1]	12	(8)
Boston	11	(5)
Chicago	8	
Cleveland	16	(8)
Denver	5	
Ft. Worth	14	
Houston	7	
Indianapolis	3	
Jacksonville [1]	13	(10)
Kansas City [1]	7	
Los Angeles [1]	23	
Memphis [1]	7	(3)
Miami	18	(6)
Minneapolis	11	
New York	52	
Oakland	13	
Salt Lake City [1]	0	
Seattle [1]	5	
Washington [1]	26	(10)
TOTAL	273	

* Numbers shown in parenthesis are Altair slots subject to return to FAA in accordance with provisions in SFAR 44-6.

[1] Flights between two airports each of which are located within this center no longer require slots. Flights from outside the center to an airport within the center still requires a slot. Please note that flights between any airports within either the Seattle or Salt Lake City centers no longer require slots.

Example: PDX-SEA—no slot required

SEA-SLC—no slot required

ORD-SEA—Seattle Center slot required

Note 1: Flights into ATL/LAS/LAX or STL still require a slot.

Note 2: Kansas City International Airport (MCI) is no longer capacity controlled for flights from airports within Kansas City Center. Flights to MCI from outside Kansas City Center require a Center slot.

Note 3: Flights into and out of DCA must be accomplished in accordance with the High Density Rule (14 CFR, Part 93, Subpart K).

Note 4: FAA/API-I approval of flights between airports within the Los Angeles Center will no longer be required effective 0001 PST January 10, 1982.

ARRIVAL SLOTS AVAILABLE AT CAPACITY CONTROLLED AIRPORTS EFFECTIVE DECEMBER 22, 1982

Airport	*Available Slots*
Atlanta (ATL)	**15 slots**
	0200–0259 z–1 slot
	0500–0559 z–5 slots
	0600–0659 z–1 slot
	0700–0759 z–3 slots
	0800–0859 z–1 slot
	0900–0959 z–1 slot
	1700–1759 z–1 slot
	2000–2059 z–1 slot
	2200–2259 z–1 slot
Boston (BOS)	**17 slots**
	0200–0259 z–1 slot[1]
	0500–0559 z–3 slots
	0800–0859 z–1 slot
	1000–1059 z–2 slots
	1100–1159 z–2 slots
	1200–1259 z–1 slot
	1200–1259 z–1 slot[1]
	1500–1559 z–1 slot
	1600–1659 z–1 slot
	1600–1659 z–1 slot[1]
	1800–1859 z–1 slot
	2100–2159 z–1 slot[1]
	2200–2259 z–1 slot
Cleveland (CLE)	**2 slots**
	2000–2059 z–1 slot
	2100–2159 z–1 slot
Denver (DEN)	**6 slots**
	0500–0559 z–1 slot
	0700–0759 z–2 slots
	1200–1259 z–1 slot
	1900–1959 z–1 slot
	2100–2159 z–1 slot
Dallas/Ft. Worth (DFW) (Including DAL)	**18 slots**
	0000–0059 z–1 slot
	0100–0159 z–1 slot
	0200–0259 z–2 slots
	0600–0659 z–3 slots
	1100–1159 z–1 slot
	1300–1359 z–1 slot

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[1] Altair slots subject to return to FAA in accordance with provisions in SFAR 44-6.

ARRIVAL SLOTS AVAILABLE AT CAPACITY CONTROLLED AIRPORTS EFFECTIVE DECEMBER 22, 1982—Continued

Dallas/Ft. Worth (DFW)—Continued

Airport	*Available Slots*
	1400–1459 z–2 slots
	1500–1559 z–3 slots
	1900–1959 z–1 slot
	2000–2059 z–1 slot
	2200–2259 z–1 slot
	2300–2359 z–1 slot
Detroit (DTW)	3 slots
	1100–1159 z–2 slots
	1400–1459 z–1 slot
Newark (EWR)	11 slots
	0100–0159 z–1 slot
	0200–0259 z–1 slot
	0500–0559 z–4 slots
	1000–1059 z–2 slots
	1100–1159 z–2 slots
	1600–1659 z–1 slot
Ft. Lauderdale (FLL)	4 slots
	0500–0559 z–1 slot
	0700–0759 z–1 slot
	2100–2129 z–1 slot
	2300–2359 z–1 slot
Houston (IAH) (Including HOU)	4 slots
	0600–0659 z–2 slots
	1500–1559 z–1 slot
	1600–1659 z–1 slot
John F. Kennedy (JFK)	14 slots
	0000–0059 z–1 slot
	0100–0159 z–1 slot
	0200–0259 z–1 slot
	0600–0659 z–3 slots
	0700–0759 z–2 slots
	0900–0959 z–1 slot
	1100–1159 z–1 slot
	1700–1759 z–2 slots
	1800–1859 z–1 slot
	1900–1959 z–1 slot
Las Vegas (LAS)	23 slots
	0000–0059 z–3 slots
	0100–0159 z–3 slots
	0200–0259 z–2 slots

ARRIVAL SLOTS AVAILABLE AT CAPACITY CONTROLLED AIRPORTS EFFECTIVE DECEMBER 22, 1982—Continued

Las Vegas (LAS)—Continued

Airport	*Available Slots*
	0400–0459 z—1 slot
	0500–0559 z—1 slot
	0800–0859 z—1 slot
	1400–1459 z—1 slot
	1700–1759 z—1 slot
	1800–1859 z—4 slots
	1900–1959 z—1 slot
	2000–2059 z—1 slot
	2100–2159 z—3 slots
	2200–2259 z—1 slot
Los Angeles (LAX)	7 slots plus 2 Tower En Route slots
	0500–0559 z—1 slot
	0800–0859 z—2 slots
	1200–1259 z—3 slots
	1700–1759 z—1 slot
	Tower En Route
	0100–0159 z—1 slot
	2200–2259 z—1 slot
La Guardia (LGA)	2 slots
	0200–0259 z—1 slot
	1700–1759 z—1 slot
Miami (MIA)	14 slots
	0000–0059 z—1 slot
	0100–0159 z—1 slot
	0500–0559 z—1 slot[1]
	0600–0659 z—1 slot
	0800–0859 z—1 slot
	1000–1059 z—1 slot
	1200–1259 z—1 slot
	1300–1359 z—1 slot
	1400–1459 z—1 slot
	1600–1659 z—1 slot
	1800–1859 z—1 slot
	2200–2259 z—2 slots
	2300–2359 z—1 slot
Minneapolis (MSP)	11 slots
	0200–0259 z—2 slots
	0700–0759 z—1 slot
	1100–1159 z—1 slot
	1200–1259 z—1 slot

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[1] Altair slots subject to return to FAA in accordance with provisions in SFAR 44–6.

ARRIVAL SLOTS AVAILABLE AT CAPACITY CONTROLLED AIRPORTS EFFECTIVE DECEMBER 22, 1982—Continued

Minneapolis (MSP)—Continued

Airport	*Available Slots*
	1500-1559 z—2 slots
	1700-1759 z—2 slots
	1800-1859 z—1 slot
	2100-2159 z—1 slot
Chicago (ORD) (Including MDW)	18 slots
	0500-0559 z—2 slots
	0600-0659 z—3 slots
	0700-0759 z—2 slots
	0900-0959 z—1 slot
	1000-1059 z—4 slots
	1300-1359 z—1 slot
	1400-1459 z—1 slot
	1500-1559 z—2 slots
	1600-1659 z—1 slot
	1700-1759 z—1 slot
Philadelphia (PHL)	45 slots
	0000-0059 z—1 slot
	0000-0059 z—3 slots [1]
	0100-0159 z—1 slot
	0300-0359 z—2 slots
	0300-0359 z—1 slot [1]
	0500-0559 z—2 slots
	0500-0559 z—1 slot [1]
	0800-0859 z—1 slot
	1000-1059 z—2 slots
	1200-1259 z—1 slot
	1300-1359 z—1 slot
	1300-1359 z—4 slots [1]
	1400-1459 z—3 slots [1]
	1500-1559 z—1 slot
	1500-1559 z—3 slots [1]
	1600-1659 z—1 slot [1]
	1700-1759 z—3 slots [1]
	1800-1859 z—2 slots [1]
	1900-1959 z—1 slot [1]
	2000-2059 z—4 slots [1]
	2300-2359 z—1 slot
	2300-2359 z—6 slots [1]
Pittsburgh (PIT)	7 slots
	0000-0059 z—1 slot
	0300-0359 z—1 slot

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[1] Altair slots subject to return to FAA in accordance with provisions in SFAR 44-6.

ARRIVAL SLOTS AVAILABLE AT CAPACITY CONTROLLED AIRPORTS EFFECTIVE DECEMBER 22, 1982—Continued

Pittsburgh (PIT)—Continued

Airport	*Available Slots*
	0500–0559 z—1 slot
	1000–1059 z—1 slot
	1100–1159 z—1 slot
	1200–1259 z—1 slot
	1300–1359 z—1 slot
San Francisco (SFO)	9 slots
	0000–0159 z—1 slot
	0900–0959 z—3 slots
	1100–1159 z—1 slot
	1400–1459 z—1 slot
	1500–1559 z—1 slot
	2100–2159 z—1 slot
	2200–2259 z—1 slot
St. Louis (STL)	10 slots
	0400–0459 z—1 slot
	0500–0559 z—1 slot
	0600–0659 z—1 slot
	0700–0759 z—2 slots
	1000–1059 z—2 slots
	1100–1159 z—2 slots
	1300–1359 z—1 slot

Special Federal Aviation Regulation 44-7 With Reference To Special Federal Aviation Regulation 44-4 and SFAR 44-5; Air Traffic Control System Interim Operations Plan

Adopted: August 24, 1983 **Effective: August 25, 1983**

(Published in 48 FR 39054, August 29, 1983)

SUMMARY: This amendment rescinds and removes Special Federal Aviation (SFAR) No. 44-4 and amends SFAR 44-5 so as to permanently allocate slots formerly used by Braniff Airways and temporarily allocated to other airlines under SFAR 44-4 to the carriers currently having those slots in their base. The amendment provides that certain slots will be available for Braniff if certain conditions are met by September 15, 1983. This amendment in part, responds to a letter dated May 19, 1983, from Braniff making a formal request for slots and to a petition for rulemaking submitted by Continental Airlines.

FOR FURTHER INFORMATION CONTACT:

J. E. Murdock III
Chief Counsel
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591
Telephone: (202) 426-3773

SUPPLEMENTARY INFORMATION:

Background

On Wednesday, May 12, 1982, Braniff Airways, Inc. (Braniff), suspended operations and filed bankruptcy papers under Chapter 11 of the Federal Bankruptcy Code. Braniff had been using a significant number of arrival slots at various airports within the contiguous United States. Those slots had been allocated to Braniff under the FAA's Interim Operations Plan, consistent with a number of Special Federal Aviation Regulations (SFAR), including SFAR 44-3 (47 FR 7816; February 22, 1982). Braniff had been allocated approximately 400 arrival slots, of which about 150 were at Dallas/Fort Worth Regional Airport (DFW). Immediately after Braniff suspended operations, approximately 25 percent of the slots used by Braniff were allocated to other carriers on an emergency basis to minimize the impact on the traveling public of Braniff's suspension of operations.

In order to allocate the remainder of the slots previously utilized by Braniff, the FAA on May 20, 1982, issued SFAR 44-4 (47 FR 22492; May 24, 1982). Under this SFAR, a random draw was held on May 27, 1982, to determine the order in which the slots used by Braniff would be allocated. The preamble to the SFAR included the following language:

> Braniff slots, either under this SFAR or on an emergency basis, are allocated on a temporary basis only. The slots are for up to a 60-day period. During that time, Braniff's Chapter 11 proceedings will be closely monitored. If Braniff does again operate, then the slots necessary for continued Braniff operations will be returned to Braniff. The carriers should be able to use these slots for 60 days, but all parties are put on notice that the award of these slots may be revoked upon 24-hour notice. Carriers should not apply for these slots unless they will be in a position to operate under these conditions. At no later than the end of that 60-day period, this temporary approval may be extended or a longer term allocation procedure for the particular slots may be promulgated.

The slots so allocated were designated "DS" on FAA records and retain that designation today.

On December 23, 1982, Braniff filed an application for approval of a proposed agreement between Braniff and Pacific Southwest Airlines (PSA). On December 30, 1982, Braniff filed with the Bankruptcy Court a "Memorandum of Understanding" as a basis for a proposed settlement and compromise of all claims, counter-claims, and potential litigations by and among Braniff, certain unsecured creditors, and certain secured creditors. The "Memorandum" contained a proposed arrangement between Braniff and PSA in which PSA would obtain a number of Braniff's aircraft, airport leases and other equipment, and Braniff's landing slots would be transferred to PSA.

On January 26, 1983, the Administrator advised Braniff that the proposed agreement between Braniff and PSA did not satisfy the conditions for the return of the slots set forth in SFAR 44-4; therefore, the slots were not returned to Braniff. The Administrator also stated that it was his intention to take action to permanently allocate these slots.

On March 2, 1983, the United States Court of Appeals for the Fifth District reversed the lower court orders approving the agreement and transfer of slots (In Re Braniff Airways, Inc., 700 F.2d 935 (1983)). The Court of Appeals held that, even under the broad terms of Section 105 of the Bankruptcy Act, slots were not property and that, therefore, the District Court did not have jurisdiction to order the FAA to return landing slots to Braniff or a "successor" of Braniff. Even if the slots rose to "some limited proprietary interest," the Fifth Circuit held that the FAA still had sole authority to approve the transfer contemplated.

On December 30, 1982, Continental Air Lines, Inc., filed a petition for rulemaking requesting the agency to institute proceedings for the adoption of rules to govern the long-term allocation of airport landing slots formerly assigned to Braniff. In support of its petition, Continental stated that the allocation of the slots formerly used by Braniff was originally intended to be for a temporary 60-day period to permit the FAA to monitor Braniff's bankruptcy proceedings. Continental further stated that the agency seems to have contemplated that slots necessary for continued operations would be returned to Braniff if Braniff resumed operations in the near term; otherwise, incumbents would be allowed to continue to use the slots, or some new long-term allocation procedure would be adopted.

By letter (copy is in docket) dated May 19, 1983, Howard Putnam, President of Braniff, formally requested authority to use 188 of the slots previously utilized by Braniff. Mr. Putnam stated that the planned start-up date was October 1, 1983.

On June 16, 1983, the FAA issued Notice No. 83-7 which proposed alternative methods for the disposition of the Braniff slots and the May 19 Braniff request.

On June 23, 1983, an agreement was filed in the Bankruptcy Court between Braniff and Hyatt Air, Inc., which would allow Braniff to resume operations.

Discussion of Comments and the Rule

The FAA received a number of comments on Notice No. 83-7. The comments were basically split among the alternatives proposed in the notice.

One commenter questioned the amount of time given to respond to the notice. The NPRM did contain an 8-day comment period. The June 28 slot selection session was a major factor in determining the length of the comment period. It was necessary for the agency to receive comments on the notice prior to the date of the session.

Since the session was set for June 28, it was necessary to ask for comments by June 24. The FAA, in fact, provided advance notice to all air carriers. It must be noted that on May 27, 1983, the FAA issued a telex to all air carriers announcing a change in the date for the slot allocation session. In that telex, the agency stated that several alternative methods to allocate slots to Braniff were being considered, including one which "would be to allocate some or all of the necessary arrivals out of the September 1 allocation." The agency further stated that "such a procedure might diminish or eliminate the need for recall for some or all of the SFAR 44-4 slots." Therefore, the agency raised the specific alternatives discussed in the NPRM with all directly affected parties several weeks before the NPRM was issued. When that telex was sent, the agency reminded all parties that the SFAR 44-4 Docket was open for comment.

In this connection, the issue of disposition of the Braniff slots was initially raised in Continental Airlines' December 30, 1982, petition for rulemaking. Continental's petition requested that the FAA make permanent those former Braniff slots allocated to other carriers while providing some priority to allow Braniff to obtain newly available slots. The petition was published in the *Federal Register*. The majority of the comments submitted in response to Continental's request to permanently allocate the "Braniff" slots supported portions of the petition. Therefore, the issue of alternative methods of allocating slots to Braniff was originally raised in December by Continental's petition. Thus, interested parties were given several opportunities during the past 6 months to submit their views on this issue. Numerous comments were submitted on that petition as well as in response to Notice No. 83-7.

It must be further noted that although June 24 was listed as the close of the comment period, 14 CFR 11.47 provides that comments filed late will be considered.

If the agency were to extend the comment period, it would also have had to delay, for a second time, the slot allocation session. The agency agreed with those commenters who urged the agency not to delay the session because of the impact that would have on the air carriers' ability to finalize and make public their September schedules. For this reason, that alternative was not selected.

Since the comment period (and following slot session) could not be postponed and since the public had several opportunities to have input on the agency's decisionmaking process, the length of the comment period in Notice 83-7 was reasonable.

Some commenters stated that it was premature to give slots to Braniff. The agency recognizes that several major additional steps must be taken before Braniff will be in a position to operate. In addition, Braniff has not shown that the Braniff/Hyatt arrangement is consistent with the Administrator's previous determination that slots would be made available to Braniff or an air carrier succeeding to the rights, duties, and obligations of Braniff. That determination cannot be made until later this summer after further bankruptcy proceedings. On the other hand, the agency recognizes that if some provision is not made to provide Braniff with the opportunity to select some slots, then slot availability could be the single factor which prevents Braniff from again operating. While the agency would have preferred to make such a slot determination later in the year, if some action were not taken at this time, there would be no slots available for the remainder of the year. Therefore, the agency needs to act now if Braniff is to be given an opportunity to operate.

Since the agency needs to take some action concerning slots for Braniff, the remaining question was which alternative would be selected.

Various commenters submitting comments to Continental's petition for rulemaking and Notice No. 83-7 were opposed to the agency recalling SFAR 44-4 slots and allocating them to Braniff. A number of commenters stated that requiring carriers to return slots would result in a substantial disruption of airline service patterns to the detriment of the traveling public. One commenter stated that this alternative "would be unnecessarily disruptive to the air traffic control system and it would be difficult to implement on an equitable basis."

A number of commenters were opposed to the alternative which would provide Braniff with slots from the September allocation. Those commenters stated that this proposal unfairly rewards carriers still holding Braniff slots over carriers that have used previous selection to obtain improved positions in the June selection. Another commenter stated that this proposal would deprive it of an opportunity to select slots at certain airports.

After issuance of the NPRM, Braniff advised the FAA that November 15, 1983, not October 1, 1983, is a realistic restart date. As a result of that change in proposed startup date, the total number of slots needed by Braniff for a November 15 operation would be 53 slots (19 airport slots and 34 center slots).

As a result of the relatively small number of slots needed for Braniff's operation, setting aside those slots from new capacity is a more reasonable alternative than recalling the "Braniff" slots from carriers currently holding them. The latter alternative would involve a costly and burdensome process which would affect 30 carriers, the approximate number of carriers with "Braniff" slots at the airports and centers in question. It would take several weeks to complete any process selected. That could create scheduling problems for these carriers and could disrupt large numbers of travellers. On the other hand, the impact on the system of withholding 53 slots from allocation is minimal. For example, the number of slots involved at Chicago, Denver, and Los Angeles represents less than 1 percent of arrival slots at those airports. While the agency acknowledges that there are carriers that could have selected those slots, it is purely speculative to suggest which carriers would have been in a position to select specific slots. In addition, that impact should also be minimal since slot restrictions will, in most cases, be eliminated by the end of the year.

Although there is some impact as a result of withholding the 53 slots from allocation, that impact is minimal and is much less disruptive of the entire system than the alternative of recalling slots. For that reason, the agency will not recall the Braniff slots and will, by this amendment, make those allocations permanent.

Assuming that Braniff is able to obtain the necessary approvals to commence operation, it will need slots to begin operation. Because of the number of slots needed, Braniff would not have been able to obtain a sufficient number of slots in the June 24 slot selection session where FAA allocated new capacity for the September-December period. Even if Braniff were granted new entrant status at that session, it would not have been able to obtain the slots it is seeking.

At the June 28 sessions, the Administrator withheld 53 slots. Those slots will be withheld from allocation until September 15. On that date, those slots will be allocated to Braniff if it has obtained all necessary approvals for its proposed reorganization and the Administrator determines that the reorganization is consistent with previous agency statements (including SFAR 44-4) on this subject. It should be noted that preliminary review of material submitted to the Bankruptcy Court shows that the Braniff/Hyatt proposal is consistent with SFAR 44-4.

If those conditions are not satisfied by September 15 or if the Administrator determines that at an earlier time that Braniff will not operate by November 15, 1983, then an allocation in accordance with SFAR 44-5 will be held for the 53 slots. In order to accomplish this, the agency will closely monitor the Braniff bankruptcy proceedings. In this connection, it is expected that Braniff and Hyatt officials will keep agency officials advised as to all bankruptcy developments.

In the NPRM, the agency proposed that other carriers be allowed to utilize the slots set aside for Braniff until Braniff operates or until it is determined that Braniff will not operate. The agency has determined not to allow temporary use of these slots. The administrative workload involved in tracking and perhaps recalling those slots outweighs the possible benefits which might be obtained by temporary usage of the slots by a limited number of carriers.

In order to obtain the information needed from Braniff on or before September 15, 1983, as to whether they will be able to operate by November 15, 1983, it is necessary to make this rule effective in less than 30 days. Therefore, I find that good cause exists for making this regulation effective less than 30 days after its publication in the *Federal Register*.

PART 91—GENERAL OPERATING AND FLIGHT RULES

Accordingly, the FAA rescinds Special Federal Aviation Regulation No. 44-4, in Part 91 effective August 25, 1983, and the FAA amends the Appendix to Part 91 of Special Federal Aviation Regulation No. 44-5, effective August 25, 1983.

(Secs. 307(a) and (c), 313(a) and 601(a), Federal Aviation Act of 1958, as amended (49 U.S.C. 1348(a) and (c), 1354(a), 1421(a)); sec. 6(c) Department of Transportation Act (49 U.S.C. 1655(c)))

NOTE: The FAA has determined that this rule only affects a minor number of slots and the number of carriers holding slots. There are no apparent direct or indirect (non-industry) costs associated with the rule. Therefore, the preparation of a full regulatory evaluation is unnecessary.

Based on the above, it has been determined that this is not a major regulation under Executive Order 12291 and I certify that, under the criteria of the Regulatory Flexibility Act, the proposed rule will not have a significant economic impact on a substantial number of small entities. In addition, the FAA has determined that this amendment is not significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Special Federal Aviation Regulation 45
Model B Airspace (Airport Radar Service Area)

Adopted: October 3, 1983 **Effective: December 22, 1983 thru December 21, 1984 for Austin, TX, & January 19, 1984, thru January 18, 1985, for Columbus, OH.**

(Published in 48 FR 50038, October 28, 1983)

SUMMARY: This Special Federal Aviation Regulation (SFAR) designates airspace, called an Airport Radar Service Area (ARSA), at Austin, TX, and Columbus, OH, within which each person operating an aircraft must maintain two-way radio communications with air traffic control (ATC). Ultralight vehicle and parachute jump operations in the ARSA are not allowed except under the terms of an ATC authorization. Within these ARSA's, ATC will, in addition to the services and separation currently applied to aircraft operating under instrument flight rules (IFR), resolve any potential conflict between an aircraft operating under IFR and an aircraft operating under visual flight rules (VFR), as well as provide traffic advisory services and arrival sequencing to all aircraft. Pilots are required to comply with ATC clearances and instructions while operating in an ARSA. The purpose of this SFAR is to confirm any national applicability of the recommendation of the National Airspace Review, Terminal Airspace Task Force 1-2.2 that an ARSA program replace the existing Terminal Radar Service Area (TRSA) program. If the operational confirmation demonstrates national applicability and feasibility, appropriate general rulemaking actions will be initiated. During the effective periods of this SFAR, any one or all of its provisions may be suspended temporarily, or revoked by NOTAM for reasons of safety or efficiency.

EFFECTIVE DATE: Austin, TX: December 22, 1983, through December 21, 1984.

EFFECTIVE DATE: Columbus, OH: January 19, 1984, through January 18, 1985.

Comments may only be submitted after December 22, 1983, and must be received on or before May 21, 1984.

ADDRESSES: Comments may be mailed or delivered in duplicate to: Federal Aviation Administration, Office of Chief Counsel, Attn: Rules Docket (AGC-204), Docket No. 23708, 800 Independence Avenue, S.W., Washington, D.C., 20591. Comments may be examined in the Rules Docket weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Bill Davis, Airspace-Rules and Aeronautical Information Division, AAT-200, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C., 20591, telephone (202) 426-8783.

SUPPLEMENTARY INFORMATION:

COMMENTS INVITED

Interested persons are invited to participate in this operational confirmation by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions. Communications should identify the regulatory docket number and be submitted in duplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 23708." The postcard will be date/time stamped and returned to the commenter. All communications received between the specified opening and closing dates for comments will be considered by the Administrator before taking action on any further rulemaking. Also, this SFAR may be changed in the light of comments received. All comments submitted will be available for examination in the Rules Docket both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

BACKGROUND:

On April 22, 1982, the National Airspace Review (NAR) plan was published in the *Federal Register* (47 FR 17448). The plan encompassed a review of airspace use and the procedural aspects of the air traffic control system. The three main objectives of the NAR are:

(1) To develop and incorporate into the air traffic system a more efficient relationship between traffic flows, airspace allocation, and system capacity. This will involve the use of improved air traffic flow management to maximize system capacity and improved airspace management.

(2) To review and eliminate, wherever possible, governmental restraints to system efficiency levied by Federal Aviation Regulations (FAR) and FAA directives—reducing complexity and simplifying the ATC system.

(3) To revalidate ATC services within the National Airspace System with respect to state-of-the-art and future technological improvements.

Organizations participating in the NAR task group were:

Federal Aviation Administration
Department of Defense
Airline Pilots Association
Air Transport Association
National Business Aircraft Association
National Association of State Aviation Officials
Regional Airline Association
Aircraft Owners and Pilots Association
Experimental Aircraft Association
Helicopter Association International

The comprehensive plan contains an administrative structure and detailed task assignments which have resulted in recommendations to the FAA, including the NAR Task Group 1-2.2 recommendations set forth below.

NAR 1-2.2.1 REPLACE TRSAs WITH MODEL B AIRSPACE AND SERVICES

> "The Task Group recommends that the current Terminal Radar Service Area (TRSA) program—Airspace and Services—be discontinued. The Task Group further recommends that the concept identified herein as Model B Airspace and Services be implemented as replacement for the TRSA program in accordance with the recommendations to follow."

NAR 1-1.2.2 INNER AREA (CORE) SIZE AND OPERATING REQUIREMENTS

> "The Task Group recommends that the physical dimensions of the Model B Airspace Core shall be a 10 NM radius capped at 4,000 feet height above airport (HAA) from the primary airport. This airspace shall extend down to 1200 feet above the surface except that an inner core with a 5 nautical mile radius shall extend down to the surface. Except for aircraft departing from satellite airports/heliports within the Model B Airspace Core, all aircraft shall establish two-way radio communications with ATC prior to entering the airspace. Aircraft departing satellite airports/heliports within the surface area of the Model B Airspace Core shall establish two-way radio communications with ATC as soon as possible. Pilots must comply with approved FAA traffic patterns when departing these airports."

NAR 1-2.2.3 OUTER AREA LIMITS AND OPERATING REQUIREMENTS

> "The Task Group recommends that the outer limit of Model B airspace be the same dimensions as the radar/radio coverage within each approach control's

delegated airspace. While strongly encouraged, two-way radio communications is *not* a VFR requirement in the outer limits of Model B airspace and aircraft are not restricted from entering/transitting this airspace."

NAR 1-2.2.4 ATC SERVICES

"Services provided within the Model B Airspace Core shall be as follows: sequencing of arriving aircraft; IFR be provided standard IFR separation; IFR to VFR be provided traffic advisories and conflict resolution so that targets do not merge at the same altitude; and VFR to VFR be provided traffic advisories. Furthermore, aircraft operating outside the Core but within the confines of the Outer Limits will receive Model B services upon establishing two-way radio communications and radar contact."

[NAR 1-2.2.5 Not applicable to this proposal]

NAR 1-2.2.6 AIRSPACE DESIGNATION CRITERIA

"The Task Group recommends that, excluding TCA locations, all airports with an operational airport traffic control tower and currently contained within a TRSA serviced by Level III, IV, or V radar approach control facility shall have Model B airspace designated; unless a study indicates that such designation is inappropriate for a particular location. Any other location serviced by a radar approach control facility may be considered as a candidate location for Model B airspace on the basis of a thorough staff study considering, but *not limited to* the following:

1. Traffic mix, flow, density, and volume.
2. Airport configuration, geographical features and adjacent airspace/facilities.
3. Collision risk assessment.
4. ATC capabilities to provide Model B services to the users at maximum benefit and minimum cost.

All proposed Model B airspace actions shall be subject to regional and headquarters approval. Military operated facilities will process requests through appropriate military and FAA channels. Any Model B location which fails to meet the establishing criteria for its respective location for more than 12 consecutive months, shall be subject to a regulatory review to terminate the Model B airspace designated."

NAR 1-2.2.7 CHARTING

"The Task Group recommends for further consideration by Task Group 1-6 that all Model B Airspace Cores be charted, and that either a visual or narrative method of identifying the Outer Limits of Model B Airspace be undertaken."

NAR 1-1.2.8 EDUCATION

"The Task Group recommends the aviation community be made aware of Model B Airspace by educational programs to support ATC operational and procedural information, phraseology, practices, and the desirability of voluntary participation. Specifically, it is recommended:

1. All FAA pilot exams and appropriate textbooks must contain a significant amount of questions and information concerning radar operation in terminal areas. Specifically, operations and procedures be included in written and practical tests for pilot certification, ratings, and reviews.
2. Specific questions and answers must be required on all flight reviews and other appropriate occasions (air carrier initial and recurrent proficiency training, pilot proficiency exams, biennial flight review, etc.) to assure that users in every aviation community have shown a current understanding of radar terminal areas and their use of these areas.

3. The FAA develop and fund a traveling air traffic team to speak to pilot groups on operations within the National Airspace System; i.e., Model B airspace. Emphasis should be given to flight instructor contact.
4. An advisory circular dealing with Model B airspace be published to include well presented, up-to-date information on operations in terminal airspace and that this advisory circular be given the widest possible dissemination to aviation users and organizations.
5. The Airman's Information Manual (AIM) be distributed free of charge to all fixed base operators (FBO's) at all public use airports.
6. FAA Public Affairs Office develop and promote through the general news media, aviation awareness of FAA services and publications available to the pilot and general public.
7. Facts about terminal airspace in some form of questionnaire be developed and distributed by the FAA to appropriate agencies (licensed pilots, fixed base operators, business organizations, etc.). This questionnaire could be a public relations effort, advisory circular, or included in the Airman's Information Manual.
8. FAA continue to make available to interested pilot groups training or other audio-visual aids that deal with terminal radar operations."

A copy of the task group report is in the public docket.

THE CURRENT SITUATION

A TRSA is the airspace surrounding designated airports wherein the FAA provides radar vectoring, sequencing, and separation on a full-time basis to all aircraft operating under IFR and participating aircraft operating under VFR.

Within the National Terminal Radar Program, there are three levels of service provided to aircraft operating under VFR. The first or basic level of service is referred to as basic radar service and consists of traffic advisories and radar vectoring when requested by the pilot or when suggested by ATC and accepted by the pilot. This service is provided by all commissioned terminal radar facilities as an additional service.

In addition to the basic service, certain terminal radar facilities provide radar advisory and arrival sequencing to aircraft operating under VFR. This enhanced level of service, referred to as Stage II, is intended to adjust the flow of all arriving aircraft into the traffic pattern in a safe and orderly manner and to provide radar traffic information to departing aircraft operating under VFR. Pilot participation is urged but is not mandatory.

The third and most enhanced level of service provided to aircraft operating under VFR in the terminal radar environment is known as Stage III Service. This program offers radar sequencing and separation as well as all of the other level services to all participating aircraft operating under VFR. As with the other levels of service, pilot participation is also urged but is not mandatory. Stage III is in use at all TRSA locations. TRSA's are depicted on sectional aeronautical charts.

The task group identified a number of problems with the TRSA program which they felt should be corrected. The task group stated that, because there are different levels of service offered within the TRSA, users are not always sure of what they are getting in terms of service; and they are not always sure of what restrictions/privileges exist, or how to cope with them. According to the task group, there is a feeling shared among users that TRSA's are often poorly defined, generally dissimilar in dimensions and encompass more area than is necessary or desirable. There are other users who believe that the voluntary nature of the TRSA does not adequately address the problems associated with nonparticipating aircraft operating close to the airport and associated approach and departure courses. There is strong advocacy among user organizations that terminal radar facilities should provide all pilots the same service, in the same way, and to the extent feasible, within standard size airspace designations.

Certain provisions of FAR § 91.87 add to the problem identified by the task group. For example, aircraft operating under VFR to or from a satellite airport in an airport traffic area (ATA) are excluded from the two-way radio communications requirement of FAR § 91.87. This condition is acceptable until the volume and density of traffic at the primary airport dictates the installation of a radar approach control. In the past, the FAA has resorted to special rulemaking under FAR Part 93, or designated TCA airspace in order to maintain safety and efficient utilization of airspace. Both of these actions represent one extreme end of the spectrum of needed control. On the other extreme is the simple airport traffic area with its attendant provisions in FAR §§ 91.85 and 91.87. The FAA believes an ARSA with associated ATC services represents a compromise action between a TCA and an ATA.

ANALYSIS OF COMMENTS

The FAA published the NAR Task Group 1-2.2 recommendation in Notice 83-9 (July 28, 1983; 48 FR 34286). The FAA received a total of 46 comments.

The Aircraft Owners and Pilots Association (AOPA) states that Notice 83-9 did not explain that a NAR recommendation may represent a consensus or a simple majority of the members of the NAR task group. AOPA also stated that it and other task group members differed with one or more aspects of the task group recommendation as noted in the staff study. Although Notice 83-9 set forth the recommendation without explaining the workings of the task group, it did indicate that a copy of the staff study is in the public docket. As stated in the comment of the National Business Aircraft Association, Inc. (NBAA) in support of the proposal, the recommendation was "the result of a conscientious effort on the part of all task group participants to compromise on the best possible solution without being overly restrictive on any of the airspace users." AOPA objects to the use of the word "confirmation" and prefers the words "operational test" to describe the purpose of the proposed rulemaking. The FAA does not agree with AOPA's statement that: "Use of the word 'confirmation' throughout appears to be an effort to prejudge the results of the test." Since the NAR task group recommendation did not address how the recommendation should be implemented, the FAA chose to propose to confirm the recommendation at selected locations rather than proposing the recommendation for national implementation.

AOPA further commented that Notice 83-9 should have contained a more detailed description of the ATC procedures that would be used in an ARSA and that the users should be given the opportunity to review the ATC procedures before implementation. There is little difference between a TRSA and an ARSA with regard to ATC procedures. The only "new" ATC procedure planned for use in the ARSA is conflict resolution; however, this is merely the existing "merging target procedures" set forth in paragraph 47 of the Air Traffic Control Handbook (FAA Order 7110.65) with a mandatory element added by the SFAR. The text of that paragraph is as follows:

"47. MERGING TARGET PROCEDURES

a. Except while they are established in a holding pattern, apply merging target procedures to all radar identified:

(1) Aircraft at 10,000 feet and above.

(2) Turbojet aircraft regardless of altitude.

(3) Presidential aircraft regardless of altitude.

b. Issue traffic information to those aircraft listed in a. whose targets appear likely to merge unless the aircraft are separated by more than the appropriate vertical separation minima.

c. If the pilot requests, vector his aircraft to avoid merging with the target of previously issued traffic.

47.c. Note: Aircraft closure rates are so rapid that when applying merging target procedures, controller issuance of traffic must be commenced in ample time for the pilot to decide if a vector is necessary.

d. If unable to provide vector service, inform the pilot."

The mandatory element enhancing the above procedure is that ATC must initiate action to resolve any potential conflict, and paragraph 3(c) of the SFAR requires each pilot to comply with ATC clearances and instructions. The phraseology used by ATC in communicating instructions and clearances to a pilot will be the same as it is today in a TRSA.

AOPA believes confusion might be caused by the requirement to maintain two-way radio communications with the facility having jurisdiction over the ARSA in situations where a nearby airport traffic area overlaps the ARSA. The FAA agrees and the SFAR has been modified to provide that the two-way radio communications requirement is met when communications are established with the appropriate tower or ARSA facility. AOPA objects to the statement in Notice 83-9 that "The NAR task group recommended the replacement of all TRSA's with Model B airspace (ARSA's)." The FAA agrees that the statement is too broad and that it should have reflected the limitations contained in the task group recommendation, NAR 1-2.2.6 AIRSPACE DESIGNATION CRITERIA, which is set forth in Notice 83-9 and is repeated in this preamble. AOPA further states that the mere existence of terminal radar at an airport is not justification for an ARSA and that their information indicates the FAA is considering up to 138 locations for ARSA's. Other commenters felt the ARSA establishment criteria was vague. Both of the confirmation sites fall within the NAR recommended criteria; i.e., both locations are TRSA's and are serviced by either a Level III, IV, or V radar approach control facility. Under the task group recommendation, similar Level III, IV, or V facilities would be candidates for an ARSA. These locations are:

Anchorage, AK
Birmingham, AL
Huntsville, AL
Mobile, AL
Montgomery, AL
Fort Smith, AR
Little Rock, AR
Phoenix, AZ
Tucson, AZ
Burbank, CA
Monterey, CA
Oakland, CA
Ontario, CA
Palm Springs, CA
Sacramento, CA
San Diego, CA
Santa Ana, CA
Colorado Springs, CO
Windsor Locks, CT
Daytona Beach, FL
Ft. Lauderdale, FL
Jacksonville, FL
Orlando, FL
Pensacola, FL
Tallahassee, FL
Tampa, FL
W. Palm Beach, FL
Columbus, GA
Macon, GA
Savannah, GA
Kahului, HI
Cedar Rapids, IA
Des Moines, IA
Boise, ID
Champaign, IL
Moline, IL
Peoria, IL
Rockford, IL
Springfield, IL
Evansville, IN
Fort Wayne, IN
Indianapolis, IN
South Bend, IN
Wichita, KS
Cincinnati, KY
Lexington, KY
Louisville, KY
Baton Rouge, LA
Lafayette, LA
Lake Charles, LA
Shreveport, LA
Baltimore, MD
Portland, ME
Flint, MI
Grand Rapids, MI
Kalamazoo, MI
Lansing, MI
Saginaw, MI
Gulfport, MS
Jackson, MS
Billings, MT
Charlotte, NC
Fayetteville, NC
Greensboro, NC
Raleigh, NC
Lincoln, NE
Omaha, NE
Atlantic City, NJ
Albuquerque, NM
Reno, NV
Albany, NY
Buffalo, NY
Islip, NY
Rochester, NY
Rome, NY
Syracuse, NY
White Plains, NY
Akron Canton, OH
Columbus, OH
Dayton, OH
Toledo, OH
Youngstown, OH
Oklahoma City, OK
Tulsa, OK
Portland, OR
Allentown, PA
Erie, PA

Harrisburg, PA
Kwajalein, PC
San Juan, PR
Quonset Pt., RI
Charleston, SC
Columbia, SC
Greer, SC
Bristol, TN
Chattanooga, TN
Knoxville, TN
Memphis, TN
Nashville, TN
Amarillo, TX
Austin, TX
Beaumont, TX
Corpus Christi, TX
El Paso, TX
Lubbock, TX
Midland, TX
San Antonio, TX
Salt Lake City, UT
Chantilly, VA
Norfolk, VA
Richmond, VA
Roanoke, VA
Burlington, VT
Spokane, WA
Tacoma, WA
Green Bay, WI
Madison, WI
Milwaukee, WI
Charleston, WV

Also, under the task group's recommendation, the following Level II TRSA locations may be ARSA candidate locations depending on an FAA review of those locations in the light of the criteria, in NAR Recommendation 1-2.2.6, the FAA's existing TRSA establishment criteria, and comments received on operations conducted under this SFAR.

Augusta, GA
Monroe, LA
Bangor, ME
Muskegon, MI
Duluth, MN
Rochester, MN
Great Falls, MT
Asheville, NC
Wilmington, NC
Fargo, ND
Binghamton, NY
Wilkes-Barre, PA
Sioux Falls, SD
Abilene, TX
Longview, TX
Huntington, WV

AOPA commented that users must be readily able to visually distinguish the ARSA from other charted airspace areas, e.g., a TRSA. Further, it felt that only the dimensions of the 5 mile "core" and the airspace between 5 and 10 miles should be charted. The FAA agrees and has developed a prototype depiction for the confirmation locations. Comments on this aspect are especially requested. Commenting further on charting, AOPA recommends that the existing criteria in FAA Order 7400.2B, paragraph 167, or an on-airport VORTAC be used to determine the surface center of an ARSA. For this confirmation period, the criteria in FAA Order 7400.2B, paragraph 167, will be used. The text of that criteria is as follows:

"167. GEOGRAPHIC POSITION OF AIRPORT

A control zone radius is measured from the 'geographic position' of the primary airport.

Note: 'Geographic position' expressed in coordinates to the nearest five seconds, is established by National Ocean Survey as follows:

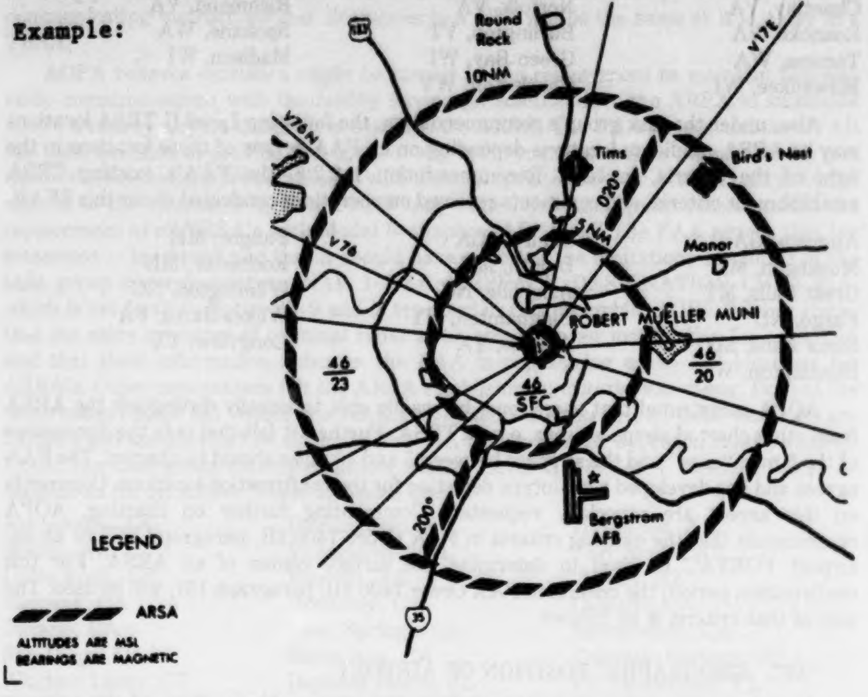
a. Box the runway pattern, excluding overruns, with a rectangle (based line oriented E-W) which touches the outermost runway on each of the four sides. Only active runways or those temporarily closed are considered.

b. Draw lines through the box from diagonal corners.

c. The intersection of the diagonals is the geographic position."

AOPA suggests that NAR Recommendation 1-2.2.8 (Education) should be accomplished before the confirmation period begins. The FAA agrees that the recommended education should be accomplished if ARSA's are established on a national scale. However, the SFAR establishes ARSA's only at two locations and the FAA is confident the education techniques specified in Notice 83-9 are sufficient for those locations during the limited confirmation period. AOPA also proposes that the floor of airspace juxtaposed to the ARSA be raised at one of the two locations to coincide with the 1,200 feet above ground level (AGL) floor of the ARSA airspace in order to allow greater flexibility to airport operators that try to circumnavigate the 5-mile portion of the ARSA that extends to the surface. The FAA believes it premature to adjust a standing airspace description in FAR Part 71 for an action that may not be permanent. Furthermore, the FAA believes the 1,200 foot AGL vertical base of the ARSA airspace between 5 and 10 miles could be confusing to pilots and ATC, especially to pilots who are trying to remain under the base and to ATC personnel who are trying to determine when the mandatory aspects of ATC services must be applied. Therefore, the FAA has decided to segment the ARSA airspace between 5 and 10 miles and establish the floors of those segments based on altitudes above MSL. The floor of a segment represents 1,200 feet above the highest terrain in that segment. This SFAR reflects this segmentation.

Example:



AOPA also suggests that there were sufficient members of NAR Task Group 1-2.2 having reservations on any need to designate an ARSA up to 4,000 feet above the airport elevation (AAE) to bring the ARSA ceiling limit back into question. AOPA suggests that an altitude of 3,000 feet AAE be established as the ceiling of one of the ARSA's. Other commenters suggest that because of the VFR cruising altitude requirements of FAR § 91.109, flights that now avoid the airport traffic area by flying at 3,000 feet above the airport would, depending on direction of flight, be required to fly an additional 2,500 feet higher. The FAA believes the ARSA altitude ceiling recommendation as presented by the task group should be used for the purpose of confirming any national application of the NAR recommendation. If national application of the ARSA is indicated during the confirmation period, the FAA will review FAR § 91.109 to determine if the FAA should propose any amendment to that section or to the ARSA description.

A number of commenters believe that national implementation of ARSA's should not be based solely on the operational acceptance of the ARSA's at the two selected sites. The FAA does not propose to implement additional ARSA's without first seeking public comment. Several commenters suggest that a standardized statement should "tell" the pilot that he has permission to enter an ARSA. Obtaining permission (authorization) to enter an ARSA is not a requirement of the rule unless the two-way radio communications requirement of the rule cannot be met. Pilots have "permission" to enter an ARSA when they meet the two-way radio communications requirement of the SFAR.

A number of commenters believe the proposed SFAR would cause the density of traffic to increase in the airspace adjacent to the ARSA because an increased number of overflights would be forced under or around the outside of the ARSA in attemping to avoid the ARSA. The FAA does not believe that the overflight operators currently participating in the voluntary provision of the TRSA's would elect to forego the similar services of an ARSA merely because of the new two-way radio communications requirement of the SFAR. This is especially true since FAR § 91.85 now requires any operator of any overflight to obtain an ATC authorization before conducting an overflight in an airport traffic area. Several commenters, mostly sailplane operators, object to the two-way radio requirement of the SFAR. An FAA review of airport operations within a 15 nautical mile radius of Austin and Columbus indicated that no sailplane operations would be directly affected by the SFAR. However, if for reasons of efficiency or safety, an operator cannot meet, or is incapable of meeting, the two-way radio communications requirement of the SFAR, that operator may request and, as appropriate, receive authorization from ATC.

Contrary to one commenter's belief, the 5 mile "core" and the airspace between 5 and 10 miles of the ARSA are not separate recommendations of the NAR task group and therefore were not treated separately in Notice 83-9.

The Airline Pilots Association (ALPA), while generally favoring the SFAR, objects to provisions in the SFAR which would allow ultralight and parachute jump operations to be conducted in the ARSA under ATC authorizations because Notice 83-9 did not address the issue of ATC separation service between any such authorized operations and aircraft operations. Under existing regulations, ultralight and parachute jump operations must obtain an authorization before conducting such operations in a control zone. Ultralight operations are likewise restricted in airport traffic areas. Any ATC element that issues an authorization must ensure that an acceptable level of safety is provided for the authorized and any other affected operations, e.g., segregation, advisories, etc. The FAA does not intend any changes in these requirements. Further, ALPA suggests the phrase "conflict resolution" when relating to ATC services should be replaced with the words "ensure aircraft do not conflict." For the purposes of this SFAR the procedure referred to as conflict resolution means that ATC will initiate action designed to ensure that aircraft do not conflict. ALPA also questions the adequacy and accuracy of terminal radars which permit a reduction of separation from the current minimums to simply ensuring that the aircrafts' radar targets do not merge with each other. Conflict resolution, for the purpose of this confirmation, is a procedure, not a separation minimum, and may be equated to the current merging target procedures in FAA Order 7110.65. Under merging target procedures, however, the controller is directed to vector an aircraft to avoid a potential merging target only upon the pilot's request. Under conflict resolution procedures the controller must initiate actions to ensure that the radar targets do not merge, i.e., the pilot's request for a vector is not a prerequisite for applying conflict resolution procedures. Any of the following conflict resolution techniques may be applied by the controller to resolve potential conflicts: (1) vertically separate the aircraft by 500 feet; (2) assign the separation responsibility to the pilot if one of the pilots has the other aircraft in sight; or (3) vector one or both aircraft to ensure that the aircraft radar targets do not merge. ALPA further expressed concern with what they believe would be a derogation in the current wake turbulence procedures if conflict resolution procedures are put into practice. The FAA has not proposed a change and no change is contemplated in the application of wake turbulence procedures. The adoption of conflict resolution procedures will in no way replace the application of wake turbulence procedures. Also, ALPA questions the discussion in Notice 83-9 entitled, "Related Airspace Studies," which it took to mean that the ARSA may be reclassified under a separate airspace action. The intent in including this item in Notice 83-9 was to advise the aviation community that another NAR task group has reviewed the current airspace classification. The FAA is considering that group's recommendations. A copy of the task group report is in the public docket. ALPA suggests that the ARSA's be described and graphically depicted on special charts and the

Class II NOTAM publication in addition to the FAA's intention to depict the ARSA on appropriate sectional charts. As stated in the Notice, the FAA plans to depict the ARSA's on the affected sectional charts. Time does not permit development of special charts and the FAA does not believe the expense of such special charts would be justified in view of the limited period of time the SFAR will be effective. This is especially true since the similarity of the ARSA with the TRSA lends itself to a relatively easy transition. Nevertheless, the Class II NOTAM publication will contain appropriate announcements, depictions, and information.

One commenter, while agreeing with the proposal as it pertains to arrivals at an ARSA, believes that requiring mandatory participation by aircraft departing airports in the ARSA was unnecessary. The commenter favors making the participation voluntary for departing aircraft. The FAA believes that, for the purpose of the confirmation period, the task group recommendation should be followed in order that all aspects of the recommendation can be considered and commented on based on service experience. A number of commenters believe the period allocated for commenting was insufficient. Most of these commenters objected to an envisioned application of the ARSA provisions beyond the two confirmation locations. As noted in Notice 83-9, the FAA determined that a 30-day comment period was sufficient because of the participation of the aviation community in the development of the recommendations and especially since the SFAR only affects two locations for a limited period of time. Further, one of the purposes of the SFAR is to obtain substantive comments on ARSA's based on operational experience. Therefore, this SFAR provides for a 5-month comment period on the ARSA and any potential national application it may have.

The Air Transport Association (ATA) suggests specific separation criteria be established for use in the ARSA which would apply between an aircraft operating under VFR and an aircraft operating under IFR, i.e., 500 feet vertical and 1 mile horizontal. This new separation criteria would, they suggest, replace the ATC procedure, conflict resolution, as described in Notice 83-9. The FAA would have considered some type of specific separation minimum for the situations ATA addresses if the selected locations had the traffic density and air carrier/general aviation mix that exists today at terminal control area (TCA) locations. However, the FAA believes the conflict resolution procedure identified in this SFAR provides an adequate level of safety for aircraft operations at the selected locations and the use of these procedures may indicate that they provide a viable alternative that could be applied to similar situations in a TCA where today a separation minimum is applied.

Several commenters believe that prospective ARSA's should be the subject of meetings with the public before the issuance of a final rule. Since the ARSA designations under this SFAR are not permanent, and their purpose is to seek operational experience under the NAR recommendation there is no need to precede this SFAR with public meetings. However, if operational experience or comments received during the confirmation period indicate that follow-on ARSA action is warranted, the FAA will hold informal airspace meetings at the affected locations. A number of commenters suggest that climb corridors, similar to those in existence at some military bases years ago, should be used to confine operations into and out of Robert Mueller Municipal Airport at Austin, TX, and Port Columbus International Airport at Columbus, OH. The FAA believes an ARSA should accommodate a random flow of aircraft. Therefore, existing traffic flows at the selected terminal areas should remain virtually unchanged with an ARSA. A climb corridor would drastically change those traffic flows by requiring affected airport operations to be funneled into narrow corridors and for that reason the FAA does not believe the climb corridor is a valid replacement for either an ARSA or TRSA. Several commenters object to what they perceived as a proposal to require aircraft to be equipped with transponders for operations in the ARSA. Others believe that the two-way radio communications requirement of the ARSA was simply a first step to requiring transponders. One commenter suggests that transponders be required for aircraft operations in the ARSA. The task group did not recommend requiring transponders, and the FAA does not envision any need in the near future to require aircraft operating in an ARSA to be equipped with transponders.

A number of commenters believe that the ARSA would cause an increase in the number of aircraft using ATC radio frequencies and thereby cause two-way radio congestion. The FAA recognizes this as a potential problem and is prepared, should the need arise, to take appropriate actions to relieve levels of activity on ATC radio frequencies that might jeopardize safety and efficiency. Such actions could include decombining control sectors, adjusting controller functions, and redistributing overall controller workload.

One commenter requested the FAA to depict satellite airport traffic flows or patterns on aeronautical charts. The FAA believes that such depiction would tend to increase chart clutter and therefore would be more detrimental than beneficial. Another commenter believes that there are no departure traffic patterns except those in FAR Part 93. FAR Part 1, in pertinent part, defines a traffic pattern as either an arrival or departure traffic flow. FAR § 91.89, requires departure operations conducted at an airport without a control tower to comply with any FAA traffic pattern. Such traffic patterns may be specified under an FAR Part 157 determination on any new or altered airport, or under a revised determination issued for reasons of safety. When such traffic patterns are established, corresponding aeronautical information is published in the Airport/Facility Directory. Another commenter believes the ARSA would render existing training areas unusable. The FAA is not aware of any training areas in the ARSA airspace between 5 and 10 miles that conflict with the existing airport traffic flows. Nonconflicting training areas may continue to exist under appropriate ATC authorizations or letters of agreement containing ATC authorizations with the facility having jurisdiction over the ARSA. It should be noted that any operations conducted in training areas within the 5 mile "core" currently are conducted under the airport traffic area requirements of FAR §§ 91.85 and 91.87 and no new requirements are contemplated for such operations in the ARSA.

The Experimental Aircraft Association (EAA) stated it supports the task group recommendation to eliminate the present TRSA program and establish a new ARSA concept in terms of design criteria, service, and standardization, on the basis of voluntary participation. EAA favors a totally voluntary participation ARSA and believes that controllers would be able to determine, by the use of radar, any hazardous situation developing between a participant and a nonparticipant and take appropriate action. In such a situation, the action would have to be the controller requiring a participant to take action to avoid a nonparticipant even though it may be the nonparticipant that is creating the potential conflict. Thus, if the mandatory aspects of ATC services in an ARSA were to be applied to a voluntary participation ARSA, then total accountability would rest solely on participants and ATC in avoiding nonparticipants. The FAA is not convinced the FAA recommendation is a viable alternative to the task group recommendation and specific comments are requested on this suggested modification of the NAR recommendation.

ADOPTION OF NAR RECOMMENDATIONS

After reviewing the NAR recommendations published in Notice 83-9 in the light of comments received, the FAA believes the potential safety and efficiency benefits to be realized justify the issuance of a SFAR to implement the task group recommendation at two locations. Implementation of these recommendations is limited to establishing ARSA's to replace the Austin, TX, and Columbus, OH, TRSA's to determine national applicability of the NAR recommendations. The FAA's action with respect to each of the recommendations is set forth below.

NAR 1-2.2.1 REPLACE TRSA's WITH ARSA's AND ARSA SERVICES

The FAA will confirm the ARSA concept at two airports. During the confirmation period, the TRSA's at the designated locations will be suspended by NOTAM. To the extent the operational confirmation demonstrates a realistic standard that has national applicability, general rulemaking will be initiated to replace appropriate TRSA's with ARSA's.

NAR 1-2.2.2 INNER AREA (CORE) SIZE AND OPERATING REQUIREMENTS

The physical dimensions of the ARSA and the operating requirements recommended by the task group are adopted except that the floors of the airspace between 5 and 10 miles will be segmented and expressed in altitudes above MSL instead of AGL because of variations in terrain elevations. This deviation is in the spirit of the task group's recommendations and every effort will be made to ensure that the ARSA airspace between 5 and 10 miles will be segmented only as necessary.

NAR 1-2.2.3 OUTER AREA LIMITS AND OPERATING REQUIREMENTS

The airspace that would have been affected by this recommendation is currently designated as controlled airspace. Since the task group has not proposed any new operating requirements for that airspace, rulemaking is not required.

NAR 1-2.2.4 ATC SERVICES

The ATC services that the task group recommended the FAA provide within the ARSA will be implemented under the FAA directives system. The services which will be mandatorily applied by ATC in the ARSA will be available to pilots on a voluntary participation basis elsewhere in the approach control's area of jurisdiction. These services will be in addition to the services and separation currently applied to aircraft operating under IFR. Specifically, ATC will: (1) Resolve potential conflictions between aircraft operating under IFR and aircraft operating under VFR so that those aircraft's radar targets do not merge; and (2) provide traffic advisory service and arrival sequencing to aircraft.

NAR 1-2.2.6 AIRSPACE DESIGNATION CRITERIA

The Austin, TX, and Columbus, OH, Airports meet the airspace designation criteria recommended by the task group.

NAR 1-2.2.7 CHARTING

During the confirmation period, the affected sectional charts will depict the ARSA as designated in the SFAR.

NAR 1-2.2.8 EDUCATION

Education activities will be directed toward the two confirmation locations and the task group recommendations will be further considered in the light of information developed during the confirmation period. For each ARSA, the FAA will conduct informal user briefings in the local areas affected and issue "letters to airmen" to pilots in the surrounding areas. These actions are designed to explain the mandatory nature of the ATC services described above (NAR 1-2.2.4 ATC SERVICES).

Related Airspace Studies

Coincidental with this action, another NAR Task Group (1-7) is considering a proposal that would classify all U.S. airspace except special use airspace. Classification of airspace has been a topic of discussion for sometime especially by the International Civil Aviation Organization (ICAO). The U.S. airspace system has become increasingly complex in recent years, as it has been subdivided and modified in order to accommodate new and changing operational requirements. The objective of the U.S. airspace classification effort would be to simplify the system and provide compatible interface with bordering countries. The ARSA could be easily incorporated into the overall classification plan for terminal radar locations currently under consideration.

Synopsis of the Rule

This SFAR describes a new type of airspace assignment, designates airspace within that description at two locations, Austin, TX, and Columbus, OH, airports, and prescribes operating rules for aircraft, ultralight vehicles, and parachute jump operations associated with the airspace assignments. The ATC services addressed above are an essential part of the overall SFAR and will be provided through appropriate ATC clearances, instructions, and advisories. These rules and airspace assignments will not replace any existing FAR Part 71 airspace rule or assignment; or any airport traffic area as defined by FAR Part 1 and within which FAR Part 91 rules apply. Operations under the proposed SFAR must be in compliance with all other applicable regulations and rules.

For aircraft arriving at any airport within the ARSA, prior to entering the ARSA: (1) Two-way radio communications must be established with ATC; and (2) while in the ARSA, two-way radio communications must be maintained with ATC. For aircraft departing from the primary airport in the ARSA, two-way radio communications must be maintained with ATC while operating in the ARSA. For aircraft departing a satellite airport or heliport within the ARSA, as soon as practicable after takeoff, two-way radio communications must be established with ATC, and thereafter maintained with ATC while operating within the ARSA.

All aircraft operating within an ARSA are required to comply with all ATC clearances and instructions and any FAA arrival or departure traffic pattern for the airport of intended operation. However, the rule permits ATC to authorize appropriate deviations to any of the operating requirements of the SFAR when safety considerations justify the deviation or more efficient utilization of the airspace can be attained.

ECONOMIC IMPACT

The FAA conducted a detailed regulatory evaluation which is included in the regulatory docket. Based on a review of local airport traffic control tower (ATCT) operations data, the National Transportation Safety Board (NTSB) accident data file and the FAA Accident/Incident Data Systems, the FAA has determined that the provisions of this SFAR provide cost savings to society in general and certain general aviation (GA) operators that outweigh the additional costs imposed on those operators. Specifically, the benefits will be provided to society in terms of a reduction in midair collisions (MAC's) as a result of the ARSA two-way communication requirement and arrival sequencing service. Benefits to certain GA operators will also be realized by the reduction of aircraft separation minimums as well as airspace simplicity. The provisions of this SFAR impose new costs on certain GA operators in terms of additional delays that may be incurred because of the possibility of receiving ATC instructions or clearances which would delay access to the ARSA. Additionally, the Federal Government will incur costs associated with educating the airman populace in the lead site locations. There are no costs associated with: (1) Avionics upgrading; (2) FAA recurring program administration; (3) materials; (4) sectional charting; or (5) circuitous routing operations.

Benefits

Implementing the proposed ARSA's is expected to provide three primary benefits: (1) A reduction in MAC occurrences; (2) operating cost savings due to reduced separation minimums; and (3) airspace simplicity.

Society is expected to benefit from a reduction in MAC's as a result of the ARSA mandatory two-way communications requirement and ATC's arrival sequencing service. These provisions provide a mechanism for reducing the amount of unknown traffic and thus the incidence of MAC's.

The FAA conducted an extensive review of MAC accidents that occurred during the period of 1978–1982. Data was derived from NTSB accident reports and the FAA Accident/Incident Data System. The FAA determined that 34 accidents that would have been preventable at an ARSA location occurred at 136 airports which employ TRSA services. FAA then developed a regression analysis for these accidents per airport providing TRSA services over a 5-year period as a function of annual aircraft operations based on 1982 operations. The result of this regression analysis is a nonlinear equation that determines the annual number of expected MAC's based on annual airport operations at airports that provide TRSA services.

The equation is:

$c = .027(n)^{1.80}$

where c = annual expected number of MAC's

.027 and 1.80 = the coefficients which yielded the least error between the actual and estimated number of collisions and

n = annual operations in units of 100,000. FAA assumes n = 2.0, for Austin, Texas, and 2.6, for Columbus, Ohio, in 1984 and increases by 5 percent annually.

Solving the equation for Austin, the number of annual expected ARSA-preventable MAC's will range from 0.094 in 1984 to 0.190 in 1992, or a total of 1.24 expected preventable MAC's over the 9-year period.

Solving the equation for Columbus, the number of annual expected ARSA-preventable MAC's will range from 0.151 in 1984 to 0.304 in 1992, or a total of 1.98 expected preventable MAC's over the 9-year period.

Next, the FAA considered the costs of a MAC which include the value of lives lost, injuries, and aircraft damage. Based on a review of FAA and NTSB accident data, published aviation activity and cost reports, the FAA determined that the average weighted cost per MAC (assuming two GA aircraft are involved) in 1983 dollars is $1,644,000. This determination considers such factors as different types of GA aircraft, average numbers of occupants on board, probabilities of fatalities, injuries, and aircraft damage associated with relevant costs and distribution of hours flown by aircraft. By considering MAC costs associated with GA accidents only, the minimum level of benefits is derived.

Based on the above formula and GA collision costs, the undiscounted MAC cost savings in 1984 are approximately $155,000 for Austin and $248,000 for Columbus. Tables 1 and 2 depict the estimated undiscounted benefits for years 1984 through 1992 for Austin and Columbus, respectively. These estimates incorporate a 5 percent annual increase in forecasted operations.

Additionally, certain VFR operators would experience 1 minute savings in arrival time as a result of reduced separation minimums during selected nonpeak hours (operators would also benefit during peak hours; however, these benefits are examined as a tradeoff against VFR sequencing delay under costs). ATC management at the confirmation sites estimates that 12,480 operations at Austin and 6,240 operations at Columbus would benefit each year. Assuming an average GA aircraft variable operating cost (VOC) of $89.94 per hour[1], which is inflated to 1983 dollars, the undiscounted cost savings in 1984 are approximately $18,700 for Austin and $9,400 for Columbus. Tables 1 and 2 depict the estimated undiscounted benefits for years 1984 through 1992 for Austin and Columbus, respectively. These estimates incorporate a 5 percent annual increase in forecasted operations.

Finally, FAA believes the simplicity of the ARSA airspace structure and the standardized services provided within the ARSA should be easier for GA operators to understand.

Costs

This SFAR imposes new costs on GA operators in terms of additional delay and costs on the Federal Government associated with educating the airman populace in the lead site locations.

FAA estimates that 36,000 and 8,667 VFR departure operations in 1984 will be impacted at Austin and Columbus, respectively, by requirements to contact clearance delivery for a departure frequency. The estimated time to accomplish this is approximately

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[1] *Economic Values for Evaluation of FAA Investment and Regulatory Programs*, U.S. DOT, FAA, September 1981

1 minute per operation. FAA also estimates the value of operator time is $58.95 per hour (see footnote 1). This estimate assumes that these are GA operators and the mix of aircraft flown by these operators is 50 percent, 30 percent, 20 percent for single engine piston, multiengine piston, and turboprop aircraft, respectively.

Therefore, the undiscounted cost of delay due to VFR departure requirements in 1984 is approximately $35,400 for Austin and $8,500 for Columbus. Tables 1 and 2 depict the estimated undiscounted costs for years 1984 through 1992 for Austin and Columbus, respectively. These estimates incorporate a 5 percent increase in forecast operations.

Certain VFR operators are expected to experience some delay during peak hours resulting from arrival sequencing. FAA estimates that 9,360 Austin and 15,600 Columbus operations would be delayed an average 1.5 minutes per operation (delays of 2.5 minutes minus 1 minute gained from reduced separation). Based on a GA VOC of $89.94 per hour, the undiscounted cost of VFR arrival sequencing in 1984 is approximately $21,000 for Austin and $35,000 for Columbus. Undiscounted costs for years 1984 through 1992 are depicted in Tables 1 and 2 for Austin and Columbus, respectively. These estimates assume an annual increase of 5 percent in forecast operations.

Certain VFR operators could experience delay resulting from being denied immediate access into the ARSA when traffic is at or near capacity. FAA estimates that 3,120 Austin and 2,080 Columbus operations would be impacted annually with an average delay time of 3 minutes per operation. Assuming an average GA aircraft VOC of $89.94 per hour, the undiscounted cost of delay to enter a proposed ARSA in 1984 is approximately $14,000 for Austin and $9,400 for Columbus. Cost estimates are shown in Tables 1 and 2 for Austin and Columbus, respectively, for years 1984 through 1992 and assume an annual increase in operations of 5 percent.

Additionally, the Federal Government will incur a one-time only cost in 1983 to establish and provide training at Austin and Columbus. Costs include FAA salaries and fringe benefits, travel expenses, public meetings, bulletins, and letters to airmen. The estimated cost of this task is approximately $20,000 per site.

Benefit Cost Conclusion

Based on the above methodology, for Austin, the discounted value of the cost savings for the period 1983 to 1992 is approximately $1.36 million and the discounted value of the costs is $0.50 million, for a benefit cost ratio of 2.70 to 1. For Columbus, the discounted value of the cost savings for the period 1983 to 1992 is approximately $2.03 million and the discounted value of the costs is $0.40 million, for a benefit cost ratio of 5.32 to 1. This is shown in Tables 1 and 2, respectively.

International Trade Impact Analysis

This SFAR will not influence or affect international trade involving aviation products or services. No comments were received concerning the international trade impact statement in Notice 83-9. Therefore, FAA certifies that this rule will not eliminate existing, or create additional, barriers to the sale of foreign aviation products or services in the U.S. and will not eliminate or create additional barriers to the sale of U.S. aviation products and services in foreign countries.

Comments Received on the Economic Impact

Comments concerning the regulatory evaluation and regulatory flexibility determinations in Notice 83-9 were received from nine commenters. None of these comments resulted in any change to the benefit/cost considerations in this SFAR. These comments are discussed in the regulatory evaluation that is in the public docket.

Regulatory Flexibility Determination

The Regulatory Flexibility Act (RFA) of 1980 was enacted by Congress to ensure that small entities are not disproportionately affected by Government regulations. The RFA requires agencies to review rules which may have a "significant economic impact on a substantial number of small entities."

Small entities impacted by this proposed rule include operators of GA aircraft such as private businesses, fixed-base operators and corporate/executive operators. FAA estimates that a minimum of 30 and 40 of these operators at Austin and Columbus, respectively, conduct local and itinerant operations.

The costs incurred by operators in Austin would be net operating costs due to delay. The total undiscounted 1984 cost (in 1983 dollars) as shown in Table 1 is $51,829 (reduced separation standard benefits of $18,708 minus total delay costs of $70,537). Therefore, the average cost per operator in 1984 is $1,728. FAA applies an average cost per operator because the number of annual operations for these small entities individually is not known.

The costs incurred by operators in Columbus would be net operating costs due to delay. The total undiscounted 1984 cost (in 1983 dollars) as shown in Table 2 is $43,592 (reduced separation standard benefit of $9,354 minus total delay costs of $52,946). Therefore, the average cost per operator in 1984 is $1,090. FAA applies an average cost per operator because the number of annual operations for these small entities individually is not known.

FAA and Small Business Administration published standards do not define threshold significant regulatory costs for these operators. Based on standards recently adopted by the FAA, the lowest threshold annualized cost level for a small entity group applies. The costs per operator of $1,728 and $1,090 are below the lowest threshold.

Therefore, FAA has determined that the proposed rule does not have a significant economic impact on a substantial number of small entities.

Accordingly, Special Federal Aviation Regulation 45 is issued, effective December 22, 1983, through December 21, 1984, for Austin, TX, and January 19, 1984, through January 18, 1985, for Columbus, OH and added to CFR Parts 71, 91, 103 and 105.

(Secs. 307 and 313(a), Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354(a)); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983); 14 CFR 11.45; and 14 CFR 11.65.)

Note—For the reasons stated under the heading "Economic Impact," the FAA has determined that this document involves a regulation which: (1) Is not a major rule under Executive Order 12291; and (2) is not a significant rule under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Also, for the reasons stated under the heading "Regulatory Flexibility Determination," I certify that the rule will not have a significant economic impact on a substantial number of small entities. The total projected impact of the amendment may be found in a copy of the final regulatory evaluation contained in the public docket. A copy of that evaluation may be obtained by contacting the person identified above under the caption "FOR FURTHER INFORMATION CONTACT."

Special Federal Aviation Regulation 45-1
Airport Radar Service Areas
Adopted: November 20, 1984 Effective: December 21, 1984 thru June 20, 1985

(Published in 49 FR 47176, November 30, 1984)

SUMMARY: This action amends Special Federal Aviation Regulation (SFAR) No. 45 to retain the Airport Radar Service Area (ARSA) at Columbus, OH, and Austin, TX, beyond their respective termination dates of December 22, 1984, and January 19, 1985. As a result of a successful operational confirmation of the ARSA concept at these sites, the FAA is taking regulatory action to propose that existing Terminal Radar Service Areas (TRSA) be replaced by ARSA's. An extension of SFAR No. 45 is necessary to continue the Columbus and Austin ARSA's during the rulemaking process, and to preclude the confusion to pilots that would result from the temporary reversion to TRSA's at these locations. No other changes are being made to the provisions of SFAR No. 45.

Comments must be received before December 15, 1984.

ADDRESSES: Comments may be mailed or delivered in duplicate to: Federal Aviation Administration, Office of Chief Counsel, Attention: Rules Docket (AGC-204), Docket No. 23708, 800 Independence Avenue, S.W., Washington, D.C., 20591. Comments may be examined in the Rules Docket weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Bill Davis, Airspace-Rules and Aeronautical Information Division, ATO-230, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C., 20591, telephone (202) 426-8783.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in this operational confirmation by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions. Communications should identify the regulatory docket number and be submitted in duplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 23708." The postcard will be date/time stamped and returned to the commenter. All communications received between the specified opening and closing dates for comments will be considered by the Administrator before taking action on any further rulemaking. All comments submitted will be available for examination in the Rules Docket both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

Background

On April 22, 1982, the National Airspace Review (NAR) plan was published in the *Federal Register* (47 FR 17448). The plan encompasses a review of airspace use and the procedural aspects of the air traffic control (ATC) system. The FAA published NAR Recommendation 1-2.2.1, "Replace Terminal Radar Service Areas (TRSA) with Model B Airspace and Service (Airport Radar Service Areas)," in Notice 83-9 (July 28, 1983; 48 FR 34286) proposing the establishment of Airport Radar Service Areas (ARSA) at Columbus, OH, and Austin, TX. These locations were designated ARSA's by SFAR No. 45 (October 28, 1983; 48 FR 50038) in order to provide an operational confirmation of the ARSA concept for potential application on a national basis.

NEED FOR AMENDMENT TO SFAR NO. 45

The FAA has determined that the confirmation of the ARSA conducted under SFAR No. 45 indicates the benefits of national applicability. The FAA has, therefore, proposed amendments to the Federal Aviation Regulations (FAR) which would establish the mechanics for designating ARSA locations and rules governing operations within the airspace of an ARSA. These proposed amendments are in the form of a Notice of Proposed Rulemaking (NPRM) and are being issued coincidental with this action. If, after considering public comments on the proposed amendments, the FAA elects not to adopt the amendments, the FAA will take action to revoke the Columbus and Austin ARSA's. Alternatively, if the proposed amendments are adopted, the SFAR will be superseded by a final rule. The FAA believes that the SFAR should be continued for a sufficient time to complete the rulemaking process on the general amendments. Extending the SFAR to cover the period in which the national ARSA program is being proposed and considered will provide continuity of ATC services at the two current ARSA locations and continuity of the rules for operating in the airspace around these airports, and will prevent confusion on the part of pilots using the airports.

The SFAR establishing the temporary Austin and Columbus ARSA's will expire on December 21, 1984, and January 18, 1985, respectively. Because these areas were established after full public notice and comment and are being extended for no more than 6 months, and because a temporary expiration of ARSA procedures at these locations could adversely affect air safety, I find that notice and public procedure are contrary to the public interest, and that good cause exists for making the extension effective in less than 30 days.

Since this is only a 6-month extension of an existing temporary regulation affecting only two locations, the FAA has determined that this document involves a regulation which: (1) Is not a major rule under Executive Order 12291; and (2) is not a significant rule under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Also, for the same reason stated above, I certify that the rule will not have a significant economic impact on a substantial number of small entities. The total projected impact of this regulation may be found in a copy of the final regulatory evaluation contained in the public docket. A copy of that evaluation may be obtained by contacting the person identified above under the caption, "For Further Information Contact."

Accordingly, SFAR No. 45-1 supersedes SFAR No. 45, is effective December 21, 1984, through June 20, 1985, and is added to 14 CFR Parts 71, 91, 103, and 105.

(Secs. 307 and 313(a), Federal Aviation Act of 1958, as amended (49 U.S.C. 1348, 1354(a)); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983); 14 CFR 11.45; and 14 CFR 11.65.)

[Special Federal Aviation Regulation 45-1

[Contrary provisions of the Federal Aviation Regulations notwithstanding,

[1. The Robert Mueller Municipal Airport, Austin, TX, and the Port Columbus International Airport, Columbus, OH, are designated Airport Radar Service Area (ARSA) airports at which, unless otherwise provided for in a Notice to Airmen issued by the ARSA facility, radar services will be provided continuously.

[(2) For purposes of this Special Federal Aviation Regulation:

[(a) The Austin, TX, ARSA is that airspace extending upward from the surface to and including 4,600 feet MSL within a 5 nautical mile radius of the Robert Mueller Municipal Airport and that airspace extending upward from 2,000 feet MSL to 4,600 feet MSL within a 10 nautical mile radius of Robert Mueller Municipal Airport from the 027° true bearing from the airport clockwise to the 207° true bearing from the airport and that airspace extending upward from 2,300 feet MSL to 4,600 feet MSL within a 10 nautical mile radius of the airport from the 207° true bearing from the airport clockwise to the 027° true bearing from the airport.

[(b) The Columbus, OH, ARSA is that airspace extending upward from the surface to and including 4,800 feet MSL within a 5 nautical mile radius of the Port Columbus International Airport and that airspace extending upward from 2,500 feet MSL to 4,800 feet MSL within a 10 nautical mile radius of Port Columbus International Airport from the 008° true bearing from the airport clockwise to the 127° true bearing from the airport and that airspace extending upward from 2,200 feet MSL to 4,800 feet MSL within a 10 nautical mile radius of the airport from the 127° true bearing from the airport clockwise to the 008° true bearing from the airport.

[(c) The primary airport is the airport for which the ARSA is designated; a satellite airport is any other airport, heliport, helipad, etc., within that ARSA.

[3. Unless otherwise authorized or required by ATC—

[(a) Arrivals and Overflights—no person may operate an aircraft in an ARSA unless two-way radio communication is established with ATC prior to entering that ARSA and is thereafter maintained with ATC while within that ARSA;

[(b) Departures—no person may operate an aircraft within an ARSA unless two-way radio communication is maintained with ATC while within that ARSA, except that for aircraft departing a satellite airport, two-way radio communication is established as soon as practicable and thereafter maintained with ATC while within that ARSA;

[(c) ATC Instructions and Clearances—except in an emergency, no person may, while within an ARSA, operate an aircraft contrary to an ATC clearance or instruction;

(d) Traffic Patterns—no person may takeoff or land an aircraft within an ARSA except in compliance with FAA arrival and departure traffic patterns; and

[(e) Ultralight Vehicle and Parachute Jump Operations—no person may operate an ultralight vehicle within, or make a parachute jump within or into, an ARSA except under the terms of an ATC authorization issued by the ATC facility having jurisdiction over that ARSA.

[4. In addition to the required preflight actions of FAR § 91.5, each pilot in command shall review NOTAM's pertaining to flight within an ARSA prior to conducting flight in an ARSA.

[This SFAR terminates at 12:01 a.m. local time on June 21, 1985, unless sooner superseded or rescinded.]

Special Federal Aviation Regulation 47
Special Flight Authorization for Noise Restricted Aircraft

Adopted: January 22, 1985 **Effective: February 26, 1985**

(Published in 50 FR 7751, February 26, 1985)

SUMMARY: This Special Federal Aviation Regulation (SFAR) provides for limited issuance of special flight authorizations to conduct certain nonrevenue operations that would otherwise be prohibited by the Part 91, Subpart E, noise restrictions after December 31, 1984. This SFAR is necessary to prevent imposing an economic burden on those operators who have a justified need to make limited operations at U.S. airports and, without this SFAR, would have to petition for a grant of exemption under Part 11.

This final rule will terminate on December 31, 1986.

FOR FURTHER INFORMATION CONTACT:

Mr. David Smith, Noise Policy and Regulation Branch (AEE-110), Noise Abatement Division, Office of Environment and Energy, Federal Aviation Administration, 800 Independence Avenue, SW, Washington, D.C. 20591, telephone: (202) 755-9027.

SUPPLEMENTARY INFORMATION:

Discussion of Public Comments on the Special Flight Authorization for Noise Restricted Aircraft:

These amendments are based on Notice of Proposed Rulemaking No. 84-24 published in the Federal Register on December 21, 1984 (49 FR 49643). Interested persons have been afforded the opportunity to participate in the development of all aspects of this rulemaking by submitting written comments to the public regulatory docket. The period for submitting comments closed December 31, 1984. All comments received have been reviewed and considered in the issuance of this final rule. This amendment and the reasons for its adoption are the same as those contained in Notice 84-24, and, unless otherwise indicated, the proposals contained in the Notice have been adopted without change.

A total of three public comments were received concerning the granting of the Special Flight Authorization for noise restricted aircraft. All commentors were in general agreement with the bases for Special Flight Authorizations outlined in NPRM 84-24. However, two specific changes were recommended for adoption by the FAA.

All three commentors requested that the FAA expand the special flight authorization to noncomplying foreign operated aircraft which use U.S. maintenance bases. The intent of the special FAR is to allow operation of noncomplying aircraft for the sole purpose of noise modification or disposition of noncomplying aircraft. The FAA feels any broadening of the special flight authorization would defeat the original intent of the rule.

Two commentors feel that processing of applications for the Special Flight Authorization should be transferred from the Director of Environment and Energy to the FAA's local regional office. The commenters state that the local regional offices which have day to day knowledge of the operations of the air carriers, aircraft leasing and maintenance businesses under their jurisdiction, will be in the better position to expedite the application process.

The FAA does not agree that the review process will be more time consuming if processed at Washington headquarters. The number of applications for special flight authorization are expected to be both minimal and dispersed over a long period of time.

BACKGROUND

Under Part 91 of the Federal Aviation Regulations, on or after January 1, 1985, no person may operate a civil subsonic turbojet airplane with maximum weight of more than 75,000 pounds to or from an airport in the United States unless that airplane has been shown to comply with Stage 2 or Stage 3 noise levels under Part 36. This restriction applies to U.S. registered aircraft that have standard airworthiness certificates and foreign registered aircraft that would be required to have a U.S. standard airworthiness certificate in order to conduct the operations intended for the airplane were it registered in the United States. Under current regulations, authority to conduct operations at U.S. airports on and after January 1, 1985, with noncomplying aircraft can only be obtained by a grant of exemption issued under Public Law 98-473 (enacted October 12, 1984), or Part 11. The FAA is aware that after January 1, 1985, there may be numerous operators desiring to operate noncompliant aircraft in the United States for the purpose of delivering them to foreign purchasers or flying them to a place where they can be modified to comply with Stage 2 or Stage 3 noise levels.

This SFAR provides the regulatory basis for approval of limited special flight authorization for noncomplying aircraft under Part 91, Subpart E. The FAA finds that it is in the public interest to allow limited operations of certain airplanes that do not meet the noise standards of Part 91, Subpart E, for the purpose of delivering the aircraft to a foreign purchaser or flying it to the site of a modifier in the United States who will bring it into compliance with FAR 91.303. With this SFAR, operators will be able to apply for a special flight authorization to allow limited nonrevenue operations at specified U.S. airports.

ECONOMIC IMPACT

This rule has minimal economic impact. The rule allows an alternative from the exemption process which imposes greater administrative costs upon operators and the FAA. While the operations are not without some noise costs, these costs can be characterized as trivial, since the number of operations at any one local airport will be extremely low in number.

Even though benefits will exceed costs for this proposal, the FAA finds that the SFAR is not likely to have significant economic impact upon a substantial number of small entities. The basis for this is the very low number of requests which FAA foresees as a result of this rule. This number should not exceed one hundred over the life of the regulation. Accordingly, preparation of a full regulatory evaluation is not required.

GOOD CAUSE JUSTIFICATION FOR IMMEDIATE EFFECTIVITY

Section 553 of the Administrative Procedure Act provides that the publication of a substantive rule shall be made not less than 30 days before its effective date except as otherwise provided by the Agency for good cause found and published with the final rule.

This rule becomes effective immediately upon publication. The FAA finds that immediate implementation of this SFAR is justified based on the relief it will provide operators of noncomplying airplanes being flown to airports in conjunction with export sales, storage, noise modification to Stage 2 or Stage 3 levels and flights necessary for the sale, lease or other disposition of the airplane. To the extent that such aircraft noise modifications, or export of noncompliant aircraft, would be delayed by prior publication of this amendment, such 30 day notice would be contrary to the public interest.

This rule has minimal economic consequencies. Accordingly, for reasons stated earlier the FAA has determined that: (1) The amendment does not involve a major rule under Executive Order 12291; (2) the amendment is not significant nor does it require a full Regulatory Evaluation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) it is certified that under the criteria of the Regulatory Flexibility Act the amendment will not have a significant economic impact on a substantial number of small entities. In addition, this rule will have little or no impact on trade opportunities for U.S. firms doing business overseas, or for foreign firms doing business in the United States.

The Final Rule

Accordingly, the FAA amends Part 91 of the Federal Aviation Regulations (14 CFR Part 91), by adding new Special Federal Aviation Regulation (SFAR) 47 effective February 26, 1985.

[Sec. 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, 1423, and 1424); 49 U.S.C. 106(g) (revised; Pub. L. 97-449, January 12, 1983, Pub. L. 96-13, February 18, 1980)]

(Sec. 313(a)(1), and 601, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, 1423, and 1431); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983; Pub. L. 99-12, January 18, 1983))

[illegible]

[Special Federal Aviation Regulation 47

[1. Contrary provisions of Part 91, Subpart E notwithstanding, an operator of a civil subsonic turbojet airplane with maximum weight of more than 75,000 pounds may conduct an approved limited nonrevenue operation in that airplane at U.S. airports when—

[(a) FAA authorization for the operation has been issued under paragraph 3 of the SFAR;

[(b) The operator complies with all conditions and limitations established by this SFAR and the authorization;

[(c) A copy of the authorization is carried aboard the airplane during all operations at U.S. airports; and

[(d) The airplane carries an appropriate airworthiness certificate issued by the country of registration and meets the registration and identification requirements of that country.

[2. FAA authorization for the operation of a Stage 1 civil turbojet to or from U.S. airports may be issued for the following purposes:

[(a) Flying the airplane to an airport where alterations are to be performed to achieve compliance with Stage 2 or Stage 3 noise levels under Part 36;

[(b) Exporting the airplane including flying the airplane to U.S. airports necessary in direct conjunction with the exportation of the airplane;

[(c) Operations deemed necessary by the FAA for the sale, lease, or other disposition of the airplane; and

[(d) Flying the airplane to a point of storage.

[3. An application for a special flight authorization under this Special Federal Aviation Regulation should be submitted to the FAA, Director of the Office of Environment and Energy and include the following information:

[(a) The airplane operator;

[(b) The airplane make, model, registration number and serial number;

[(c) The purpose of the special flight authorization;

[(d) All U.S. airports to be included in the special flight authorization and the number of takeoffs and landings at each;

[(e) The approximate dates of the requested flight authorizations;

[(f) The number of people to be aboard the airplane and the function of each; and

[(g) Any other information or documentation requested by the Director, Office of Environment and Energy, as necessary to determine whether the application should be approved.

[4. Information collection requirements contained in this regulation have been approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511) and have been assigned OMB control number 2120-0518.

[5. This Special Federal Aviation Regulation terminates on December 31, 1986, unless sooner rescinded or superseded.]

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